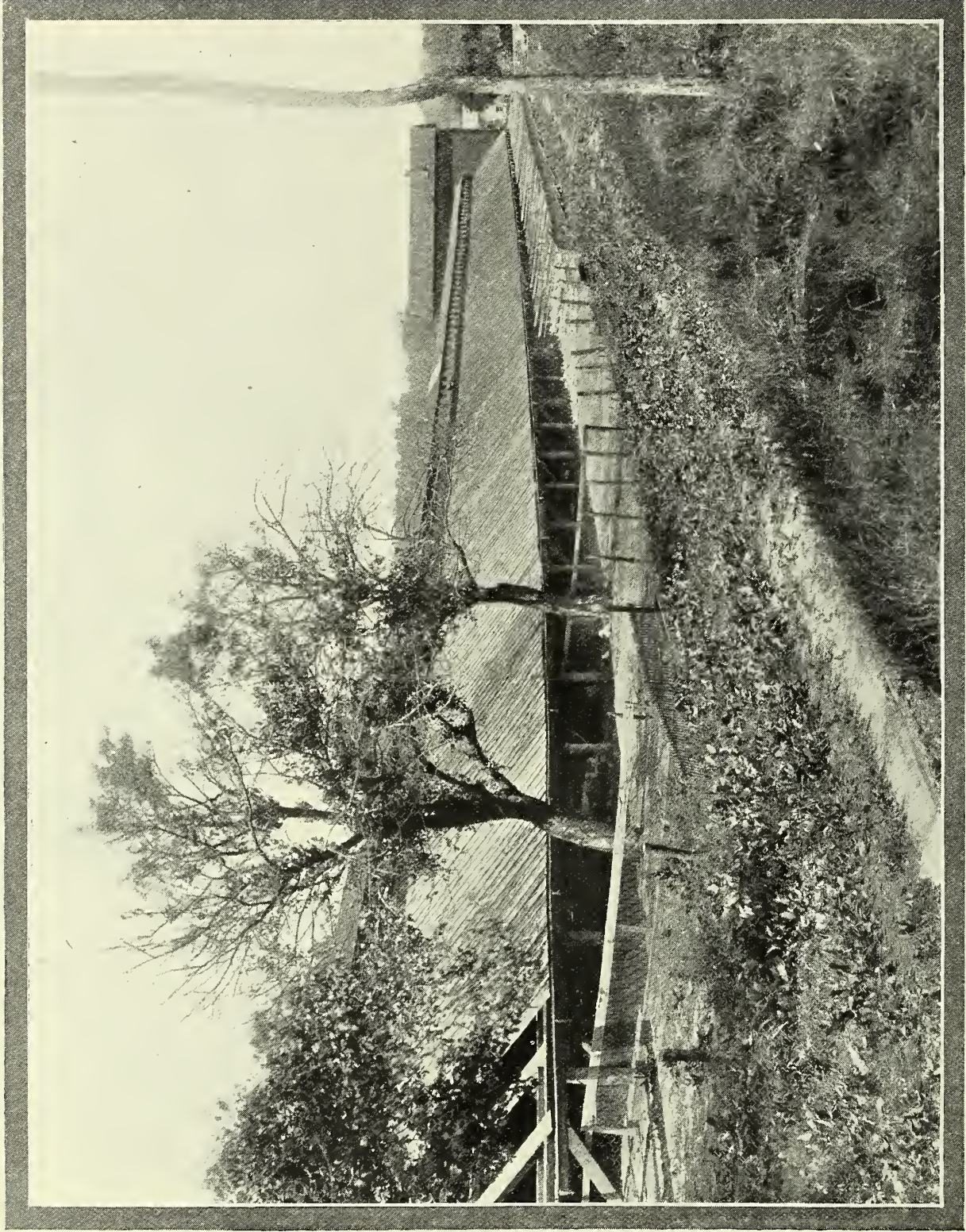


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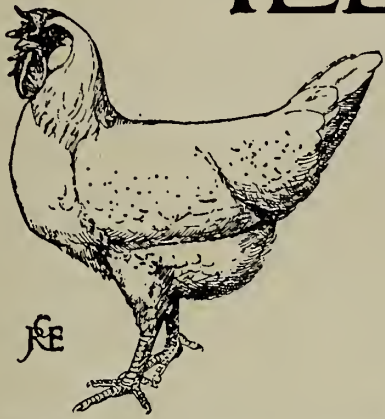




**AN IDEAL REARING SHED FOR DUCKLINGS.**  
The Rearing Shed at the Afton Farm. (See article on "Wisdom from Afton Farms," page 395). [Copyright.



# THE ILLUSTRATED POULTRY RECORD



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## DIARY FOR THE MONTH.

### EDITORIAL NOTICES.

Telegrams : "VIVACIDAD." Telephone : CITY, 2083.

*The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs or sketches, and publication in the ILLUSTRATED POULTRY RECORD can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.*

*The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.*

*The Annual subscription to the ILLUSTRATED POULTRY RECORD at home and abroad is 8s., including postage, except to Canada, in which case it is 7s. Cheques and P.O.O.'s should be made payable to the ILLUSTRATED POULTRY RECORD.*

**The ILLUSTRATED POULTRY RECORD is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor.**

**The latest date for receiving advertisements is the 20th of the month preceeding date of issue.**

**The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.**

### The International Meetings.

Arrangements are well forward for the meetings already announced in connection with the forthcoming meetings of the International Poultry Association, commencing on July 18th, and it is anticipated that the gathering will be representative although some of the long distance men will not be able to attend. That was to be expected, as journeys from Australia and South Africa cannot be lightly undertaken. Lord Middleton, who is President this year of the Royal Agricultural Society, has kindly promised to open the proceedings at the first session by presiding until the President is formally elected. This session will be open, by invitation, to visitors and the press, and those who desire to attend should communicate with Mr. Edward Brown, F.L.S. Several functions have been arranged with the object of making the stay of the members of the provisional committee pleasant as well as useful. Further information will be given in our next issue when the final programme will be available.

### County Problems.

It is, we suppose, too early to expect much result from the large sums appropriated by the development commissioners for county agricultural education, but we must confess to considerable trepidation as to how far the schemes submitted provide adequately for poultry instruction. In a few instances we have heard of enquiries either for teachers or in respect to plans for farm institutes; but these are merely a moiety of those counties which are hopelessly in the rear. As a fact it has been suggested that one of the few counties which has a poultry lecturer has been considering



whether his work could not be dispensed with. Nor are we altogether surprised considering the past history of the greater part of County Councils. It is not too much to say that with exceptions here and there the majority of members of education committees have not the slightest interest in poultry. Who ever heard of anyone being co-opted on these bodies because his knowledge respecting poultry would be useful. The majority are there for other purposes. If some of them could get rid of fowls altogether they would be well pleased. Others treat the subject with contempt, and if anything has to be done it is merely the crumbs after other branches have been served.

### The Remedy

It is time that this farce was ended. What will bring the greatest return to the greatest number should be the main consideration, regardless of all personal interests and predilections; not what pleases the few. If that were so it is unquestionable that poultry-keeping would occupy a much more important place than the majority of other subjects, for there is no one which touches to the same extent so many sections of the community. That the opportunities as a result of the development fund are great is unquestionable, but past experience justifies us in the belief that, so far as this special branch is concerned, unless the Board of Agriculture insists as a preliminary to grants schemes shall be submitted which adequately provide for all branches, the majority of these county committees will treat poultry as they have in the past. What we want to see within two years is at least 100 poultry instructors at work in England and Wales, and 30 in Scotland. These will be none too many, nor one more than can find abundant scope. Even the most progressive countries are far behind what they should be, whilst as for others—we wait to see what they will do.

### The Agricultural Colleges.

It is stated that one or two of the agricultural colleges are making a move towards a better state of things, but the signs as yet are not in evidence. We should like to be in a position to go over the various schemes submitted to the development commissioners on behalf of such colleges, and obtain information as to the relative position of poultry to other subjects. If that were available the publication would reveal what are the true facts of the case. Yet there is money available. It is, however, the business of the colleges to prepare and submit schemes. What we can only hope is that the development commissioners and Board of Agriculture will

decline to accept these unless they fairly and adequately represent all branches of agriculture and live stock. That can be accomplished without sacrifice of any individuality due to its conditions. It is often desirable for a college to devote special attention to a subject in addition to its general agricultural teaching, as there are manifest advantages by so doing. That should not be at the expense of the latter, but as an addition thereto. Considering the importance of poultry-keeping in every section of the United Kingdom together with the opportunities presented for increased production, there is no college or university with an agricultural side which should fail to employ one or more fully qualified poultry teachers, and which upon its farm, if it has one, there should not be a well-equipped poultry section. No matter how bad the past records may have been these may be buried provided future developments repair the breach but not otherwise. Of the money which may now be available for extension we look to the Board of Agriculture to refuse its sanction to schemes or the granting of public money, unless and until Poultry are adequately recognised and given an adequate position. No central institution, if established, and it must be confessed the project for a national poultry institute is not making the progress we had hoped, can ever do the work of district colleges which have their own place in rural regeneration.

### The Battle of the Fireless Brooder.

It is hard to abandon ideas long cherished—that is, to some people, whilst to others it is as difficult to maintain them. Men are differently constituted. Some there are to whom a novelty is specially attractive, it always is the best, and some to whom such is anathema. It is, however, right and fitting that every notion when introduced should go through the fire of test and criticism. Unless it can stand these there is no justification for its introduction. Many that appear theoretically perfect fail in practice, and it is there that the final decision will be arrived at. Nor must we expect unanimity of result, for that is scarcely possible. At least such is not true in the case of fireless brooders, and the accounts being published in some of our weekly contemporaries show extremes in favour of and against. Up to the present the former are in the ascendant. In a few instances failure is recorded, or claims made that the trouble is greater or the results less satisfactory than where heat is applied, but the fact remains that not a few breeders, among them such as operate on a large scale, declare themselves on the side of the newer type, and state that the chickens are stronger and better than those reared in the old



## SUCCESS IN POULTRY-KEEPING.

W. Brett argues that Co-operation is the Only Way.



"LL tell you what; farming's done for. It don't pay and never will pay again," and Farmer Brown, draining his mug, set it down with a crash on the bench.

He always closed his periodical arguments with old Larsen, from Denmark, in that way. It sounded conclusive. And, as a rule, old Larsen would murmur "So *you* say," and toddle home. To-day, however, he was in an argumentative frame of mind.

"You're right," he said. "Farming *is* done for. It doesn't pay and never will pay again."

Farmer Brown was amazed. "Hullo, you've changed your tone, have you?" he chuckled.

"Yes, you're right. *Your* sort of farming won't pay. How can you expect it to? How can you expect any business to pay when it's managed in the muddle-headed, short-sighted way most farms are?"

"Let's hear what *you* would do, then," with heavy sarcasm.

"I'd be business-like," said Larsen shortly. "Look here, how many eggs did your fowls lay last week?"

"I don't rightly remember. I don't keep no trace. Poultry don't pay. I only have those few hens to please the missus. But, say, it was a couple of hundred."

"You keep no records? Well, and—"

"How can I find time to keep records," exploded Brown, "and any way I'm no good at figuring."

"— and those two hundred eggs were sent to town. You had to make a special trip to the station with them, they charged you a ruinous rate for carriage, and you realised in the end just about enough to pay expenses."

"Now, Farmer Jones and old Jarge were both saying *they* sent a couple of hundred eggs to London apiece last week. *They* found that the railway charges swallowed up all the profits, too."

"Yes, those danged railways do ruin us farmers."

"But don't their charges work out so that the more you send the less you pay in proportion?"

"Of course, they do, but that don't help me. I send what I have to send, and if it was almost as cheap to send twice the amount it don't do me any good."

"But what if you and old Jarge and several others sent all your eggs in one batch? The lower rates would help you then, wouldn't they?"

"Dang me, but that's a good idea. I hadn't thought of doing those railway companies that way."

"It's the simplest form of co-operation," said old Larsen, "the form of co-operation which has made my country—Denmark—prosperous."

"Oh, it's co-operation is it? Then it won't work. I know what co-operation is. It's socialism. The squire says to me t'other day—"

"You've been to London, eh, Brown?" interrupted Larsen. "You've admired the beautifully kept roads and paths, the ever-ready water supply, gas and electric light. You've blessed the trams and the telephones. You've wondered at the picture galleries and the big public parks, the hospitals and the schools. You thought they were all fine."

"Eh, they were fine."

"Did it never strike you that they were merely a little variation of the co-operative plan I've just explained to you?"

Brown looked thoughtful by way of reply.

"Do you really know what co-operation means?" old Larsen asked suddenly.

"It's a dodge to get more work from the workers and pay 'em less wages."

"No, it is simply an agreement by a number of men to unite in doing something which none of them individually would be able to do."

"Oh," said Brown, then after a long pause, "I see."

"You don't see just yet, but you shall see. Supposing you'd only got five acres instead of five hundred. You couldn't afford a plough or a team of horses to draw it. And supposing Jones and me and a few other chaps also had only got five acres each. We couldn't afford a plough and horses either."

"No, but we could hire one."

"We could, but it's an expensive way of going to work. The man who owns the plough has got to make a profit from the hiring. Wouldn't it be better for you, Jones, me and the rest to buy a plough between us, each pay so much to keep the horses and use them turn and turn about?"

Farmer Brown danged himself quite half-a-dozen times, and admitted that there was something in the idea.

"Now, listen here," said old Larsen, "and I'll tell you just how farming can be made to pay. We'll say you, Jones and I enter into a partnership—we co-operate. We buy our seeds and manures together. We buy three times as much



as one of us alone would do. We almost give a wholesale order, and we pay almost wholesale prices."

"Good," chuckled Brown.

"Instead of each buying one plough, or one harrow, or one cow or pig, one of us buys for the three of us. Down goes the cost again."

"Eh, down goes the cost."

"You have a heifer to sell, so have I, and so has Jones. We each go to market and we each lose a day's work on our farm, though one of us could have taken all three heifers to market."

"Three heifers aren't *much* more trouble than one"

"And, knowing that it hardly pays us to send our two hundred eggs apiece to town, we three lump them together and send them up in one lot."

"And get cheaper rates and do those danged railway companies."

"But, perhaps, Jones' and your eggs are cleaner and fresher than mine, or your milk is richer, or your steers in better condition. And I say to myself: 'This isn't fair on Brown and Jones. I'm keeping down their prices because I'm too lazy to look after my chickens or my cows properly. I must keep on a level with them.'"

"So we all try to improve our farms and stock. I see."

"You know what co-operation does for the town dweller. It gives him trams and telephones, hospitals and hot water, and hundreds of other conveniences and necessities. You know now what co-operation *might* do for the men on the land."

"Just at present the man on the land is too blind to perceive the advantages of co-operation. He prefers to plough his own furrow alone and unaided and, incidentally, as he works he wails: 'Farming doesn't pay.' He puts up with the daily impositions of all who fatten on his labours. He pays the middleman an extortionate commission to dispose of his produce to the consumer. He pays an inflated charge to the railway companies to take his produce to the middleman. He pays to the middleman a preposterous commission to supply him with the raw material—seeds, manures and the like—from which he obtains his produce."

"The man on the land is a fool, which ever way you look at him. How much longer will he groan under his burdens without making one single attempt to shake them from his shoulders? How much longer will he and his heirs go on paying rent for his little farm or holding, purchasing it outright again and again in the course of years?"

"How much longer will *he* allow his demands for land, when he wishes to forsake the city for the occupation of his ancestors—farming—to be contemptuously ignored?"

"He will wait for all these things and many others which are his rights, until he is educated to appreciate the blessings of co-operation."

"Co-operation will place producer and consumer directly in touch with one another, without the intervention of the middleman. It will free him from the bonds that bind him to heavy railway freights, giving him his own transports. It will give him his seeds and his stock and his implements at cost price, and it will give him the knowledge to till the land scientifically."

"And having done all this, co-operation will dower him with the greatest blessing of all—the power to demand land, perhaps even at the expense of My Lord's vast undeveloped or undercultivated estates, but nevertheless, to demand it knowing that he is within his rights."

"Let those on the land band themselves together on co-operative lines. Then farming will pay; then shall Great Britain be freed from the shame and danger of having to depend for four-fifths of her food supply on the foreigner; then will the unemployed problem be solved once and for all."

"But co-operation is the *only* way."

### A Purdue, U.S.A., University Appointment.

Mr. J. E. Dougherty, of Cornell, has been appointed as assistant in Poultry Husbandry at this College and Experiment Station.

### The Virtue of the Husk.

In the *Experiment Station Record* is given the results of observations made with fowls fed upon polished and unpolished rice, from which it was found that fowls developed multiple neuritis when fed exclusively on polished rice, whilst fowls fed on unhusked rice, or undermilled (unpolished) rice, did not acquire the disease, or did those fed on undermilled rice combined with large amounts of sodium chlorid."

### Chicken Disease in China.

A German scientific journal states that there occurs yearly in Tsingchan, China, an acute febrile disease which causes a large mortality among chickens. It is caused by an ultravisible filterable virus which accumulates in the blood, organs, and in the secretions and excretions. Experimental tests showed the incubation period to be a very short one, and that death occurred in 2 to 3 days. Geese, ducks, rabbits, and mice could not be infected, while pigeons could be infected occasionally.



## THE INVISIBLE CHICKEN.

### FOURTH ARTICLE. THE SIX DAYS' WONDER.

*Written and illustrated by JAMES SCOTT.*



At the end of the first week approaches, the chicken begins to assume something like its normal formation, as I stated in the last chapter. It has, however, a very grotesque appearance which can only be fully understood by completely isolating the embryo from its surroundings. This is done in the following manner:

I crack an egg of six days' incubation, and allow its contents to fall gently into a shallow glass jar. It is then noticed that no distinct white (*i.e.*, albumen) and yolk are present, but that both have combined to compose a comparatively thin yellow fluid. If a drop of this liquid is microscopically examined we find that an abundance of clusters of oil globules (yolk) are suspended throughout it. It is astonishing how great a dilution this liquid can stand, without becoming watery, although originally it is only thin itself.

After breaking the sixth day egg into the glass jar, and allowing the contents to settle, they resembled the details of Fig. 1. The embryo floated on top, surrounded by a pappy mass ramified with an entangled network of blood vessels. We cannot observe the curious little chick properly until we clear it from its burdens; and this process needs a great amount of care and trouble. After freeing it as far as possible by pouring away the yellow fluid, and washing off the superfluous portions of matter, the embryo can be seen in the transparent water which has replaced the nutriment, as an object about three quarters of an inch long, fully enclosed in a delicate white veil—this is the amnion previously referred to in the other articles—and having very large eyes. We can see the object very plainly through this thin membranous covering. It furnishes us with some very wonderful details of structure, by studying which we are enabled to trace back the ancestry of the birds to the flying reptiles, which themselves must have developed from the creeping ones. I shall have a lot to say on this particular phase of the subject as I proceed with the mysteries concerning chicken formation.

After entirely removing the embryo from its entanglements and wrapper, and magnifying it, we have before us the quizzical creature depicted in Fig. 2. The head is of tremendous size compared with the body. On the top are

swellings which resemble a couple of bladders united side by side. These are associated with the fore-brain; and extend downwards as lobes which merge into the now-soft beak. Slender, vividly red, blood vessels can be detected beneath the tender skin.

The most obvious features are the eyes. They make the little unborn chicken look like a veritable ogre; a fact which is emphasized when the head is examined in front view, according to Fig. 3 illustration. It is almost incredible that such heads as those now shown will develop into the charming, well-proportioned craniums of fluffy, perky, chickens.

Anyone not understanding the marvels of embryology who happens to closely inspect the illustration Fig. 2, may incline to the belief that I have made a mistake in showing distinct arms



**Fig. 1.—Top view of a small glass jar into which the contents of a 6-days' incubated egg have been dropped. Nearly life size.**

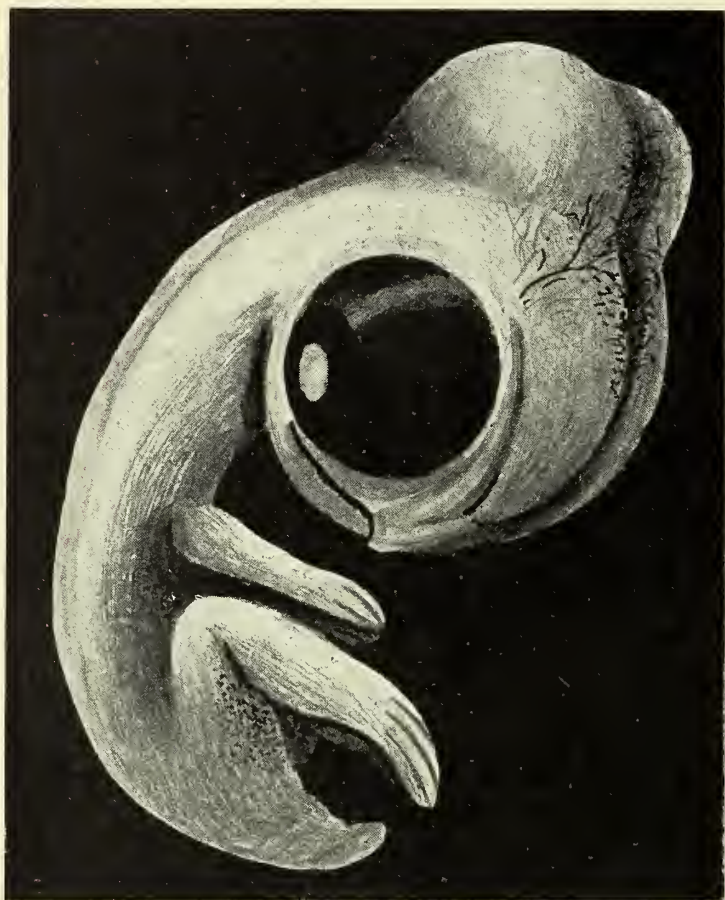
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and hands on the forepart of this very young bird. I have not done so, however. Arms and hands *do* exist during this and later stages; but as the changes occur in the egg they gradually become modified into wings—into *clawed* wings, moreover. Very few people, even among professional poultry breeders, are aware that fingers and wing claws adorn their birds at



certain periods. These details will be properly dealt with at the right time.

It will of course be less surprising that the hind limbs, or minute legs, are similarly fingered or rather toed. Still, the shapes of



**Fig. 2.—An embryo chicken of 6 days' incubation, magnified. Its actual length was  $\frac{3}{4}$  inch. The similarity of the wing and leg developments to the arms and legs of a child will be noticed.** [Copyright.]

the legs, and their adjuncts are very curious in these stages.

The fact that the young chicken possesses hands furnishes the scientist with a link in the chain of evidence that proves beyond a doubt that the progenitors of fowls—of all birds, indeed—must have been far different from the present inhabitants of the poultry houses. The ancient wings were more in the nature of membranes stretched between elongated fingers—webbed limbs, really. When I come to discuss this part of the subject such connections will be described.

The four embryo limbs are, to the naked eye, more like flappers when spread sideways from the body. They are very soft, and the enclosing skin goes right round fingers and toes. Is it not amazing that such delicate, peculiar arms will develop into strongly, yet lightly, boned wings, covered with pretty feathers?

Returning for a few moments to the other features it may be stated that the major portion of an eye consists of the ball and its contents. The lens and the surrounding iris are squeezed out on top, as it were; giving the strange little being a most extraordinary stare. Upon examining one of these eyes under the microscope we can see the cellular network gradually building up the pigment areas; while fringes are to be found around the lens.

Although the commencement of the feathers can be detected at this stage they can be better studied during later periods. I do not propose to deal with them just yet. I have now given the superficial aspects without too closely scrutinizing the skin and so on.

The nucleus is the agent by which all this elaborate work is accomplished. The nucleus is the life speck of the cell. Nuclei have themselves been of exceptional interest, in claiming separate study. They each have a nucleolus with which it would be too technical to deal at all exhaustively. Moreover, a great amount of controversy still goes on concerning these ultra-microscopic formations. Of the presence and actions of the nuclei themselves there can be no doubt. They can be made to yield a rich substance, by the treatment of themselves, called *nuclein*.

In this chicken embryo, and in the surrounding medium, the microscopic cells, arising originally from the multiplication of the *blastoderm* cells (see former articles) have each a nucleus inside it; and when this nucleus splits and separates it causes the division of the cells containing it. Each cell then enlarges to the size of its forerunners, and develops a nucleus that repeats the performance.

Just by way of explanation, suppose we have an immense building containing thousands of small separate, yet united, rooms of roundish form, which will typify cells. In each room is a workman (not so shapely as men now are). The house, bathed and enveloped in fluid which percolates through the walls, would typify a partly formed chicken. The fluid consists (say) of a great variety of substances dissolved together. As it passes through the various rooms each workman extracts a certain ingredient, plasters the walls with it, and then himself splits into halves. In some cases the workmen would fill up rows of rooms with lime which would set hard and embed themselves in it, thereby stopping further growth for awhile. Bone would in this way arise.

These ideas may be exaggerations, but they will help to convey my meaning.



All the workmen will have selective powers. Some will extract lime ; some will extract iron, to help form blood ; some will extract sulphur, to help form feathers ; some will extract phosphorus to help form brain and nerves ; some will extract—well, anything suitable and desirable. The main point to bear in mind is that available materials would be rightly disposed of, by filling a room ; or by adding to its walls ; or by altering the shapes of collective mass of cells—*i.e.*, rooms.

When the workman had lain down in the centre of the room, and automatically divided, a wall would creep across the room and make two of it ; each small room would then enlarge to the size of the original, and push its neighbours away. As all rooms would be, as a rule, doing the same, increase of total bulk of the house would occur. Then each half workman would grow into a complete one ; and repeat the necessary processes.

In this way, some walls would be absorbed in rows, leaving channels for excess, or newly made, mixtures to flow along. Some workmen and their rooms would split up sooner than the others ; and be remodelled by surrounding pressure.

Gradually the outer, plain form of the house would become, by additions at certain portions, designed into a chicken.

This is a crude idea ; but will enable the reader to grasp the primitive significance of the object. In what way the nuclei become selective, so as to make bones, flesh, blood,

nerves, skin, eyes, beaks, and so forth we shall never know. That is Nature's Secret.

This interesting series commenced in the March issue, and will be continued next month.



Fig. 3.—Front view of the head of chicken shown in Fig. 2.  
[Copyright.]

## NATURALLY PRESERVED EGGS.

CAN HENS BE INDUCED TO PRESERVE THEIR OWN EGGS?

by EDWARD BROWN, F.L.S.

“WE are such stuff as dreams are made of,” was declared by the Great Dramatist. His thought involves realisation of the transience of human life, yet something in addition, for it helps us to know that dreams embody more than mere vision. They are in many instances, the lode star which points the way to development. In so far as these suggest something better than we already possess, even attempts to discern what has not been revealed make for progress though they may fail in accomplishment of what was first in view. True it is that many dreams of what might be fail in realisation, but it is not infrequent that in missing one, that which is of

greater ultimate value is secured. The fact is that the dreamer is the Herald, may be often “a voice crying in the wilderness,” as necessary to progression as what is termed the practical man, who would continue in a mill-horse round from one generation to another were it not for imagination of what is not but might be. The one is the complement of the other as are the two sexes.

So much by way of introduction to mentioning a study recently published by Professor Oscar Riddle of the University of Chicago, entitled : “On Inducing Hens to Preserve their own Eggs ; or the Permeability of the Ovarian Egg Membranes of the Fowl to Urotropin,



Sodium Benzote, and Sodium Salicylate," and which presents new avenues of thought and for experiment. The perishability of the egg has long been realised. Efforts have been put forth, and with a modest amount of success, to retard those changes which take place in the post-laying period. That is the object of lime water, water glass, cold storage and the score of other methods adopted. It must be freely recognised, however, that one and all are by no means complete, even though they are useful in the extreme. The fact is self evident that the egg contains the elements of its own destruction. Were it possible to produce it with the constituents for its preservation the entire aspect of affairs would be changed. Whether such is a possibility may be denied, but at least we can give Professor Riddle credit for approaching the problem from an absolutely new stand point. Even those of us who doubt his success, not from innate conservatism or scepticism in respect to new ideas, but by reason of difficulties and dangers noted below, can study his observations with the deepest interest.

The question presenting itself was as follows :

Despite the generally rough exterior of the common barn yard fowl, is it not possible to bring about some very nice adjustments between its blood and its growing area, such as will effect the formation of eggs thus capable of maintaining themselves against the ravages of time and the decomposing influences of temperature?

Such was what the experimenter set himself out to test, in a spirit of wonderment not of assumption. And, as will be seen below, with a measure of success.

The question which presented itself for consideration was whether certain chemical substances if fed to the birds would first be absorbed by the blood, and thence pass to and penetrate the cells which guard the germ-plasm. In that case it further remained to be seen whether such substances would decompose spontaneously within the egg, and the element thus liberated exercise a preserving action on its contents. The results as summarised by Professor Riddle in his paper are as follows :

When hexamethylenetetramine (urotropin) is fed to laying hens it passes through the follicular and vitelline membranes surrounding the egg and is deposited in the egg. It undergoes decomposition there; formalin being set free. It acts as a preservative; *i.e.*, it lengthens the time which normally intervenes between the fresh and the unpalatable egg.

Numerous chemical tests have failed to demonstrate the presence of either benzoate or salicylate in eggs from birds fed with these substances. Whether the latter actually entered the egg, but in another form or combination, *e.g.*, as hippuric and salicyluric acids respectively, has not been determined; our supply of eggs having been exhausted in making other tests. Quite probably the benzoate would give rise to ornithuric acid, since it is known that this acid is formed when benzoate is excreted through the kidneys of birds. Some other evidence, however, is afforded by the eggs from birds fed with sodium benzoate and sodium salicylate that such eggs, particularly those supposed to contain salicylate, withstand the effects of summer temperatures better than do the untreated control eggs.

In view of the results recorded, opening as they do a new avenue for enquiry, it will be well to give further information as to the experiments conducted, which will be better done in Professor Riddle's own words :

The experiments were carried out in the following manner: Normally fed, laying hens were arranged in lots of five each. To one lot urotropin was fed; to another sodium benzoate, and to another sodium salicylate. The feedings were continued over a period of eight to ten days. All of the eggs laid during the week preceding the beginning of the dosing period, and all laid during the *second* week after the close of that period, were kept as control. (Those laid during the first week after the dosing stopped were discarded as being contaminated with the drug).

The dosage in each case was 0.4 G. administered in gelatin capsules twice per day; *i.e.*, the total dosage during each twenty-four hours was four-fifths of a gram. Two birds were not in good condition on the fifth day of the dosing and were withdrawn from the experiment.

Both control and dosed eggs were kept at moderate temperatures, *i.e.*, 12°-18° C. (1), until the last of the control eggs were laid. Then all were placed at a temperature which fluctuated from 20°-32° C. (2) being left thus exposed for months in order to compare the "keeping" qualities of the various eggs.

(1) 53.6—64.4 F. (2) 68—89.6 F.

It is probably better to follow more specifically the eggs from the birds which were fed urotropin, since in these the experiment



was the most successful. The eggs of the series were laid between June 30th and July 30th. They belong, therefore, to the class of the difficult-to-keep summer eggs, which cold-storage men designate as "dirties." Already on August 20th and on September 17th a comparison by taste and smell of control and dosed eggs left no doubt whatever that the dosed eggs were the more palatable. These tests, repeated on October 12th and November 10th, confirmed the earlier result. On the latter dates the control eggs almost without exception were quite unpalatable. The dosed eggs could be eaten even on the last named date. It cannot be said, however, that these control eggs would ever be mistaken

verifying these tests as well as for friendly and helpful conversations and suggestions.

It was made certain that the urotropin is excreted into both the white and the yolk of the egg. This was determined in the following manner: Eggs which were laid within twenty-four hours of a *first* feeding with urotropin were found to yield formaldehyde. Here the formaldehyde could not have entered the *yolk* while in the ovary, since such yolk must have left the ovary several hours before the feeding. It must, therefore, have been excreted by the oviduct into, or with, the albumen. In the other case it was shown that urotropin can penetrate the follicular membrane and enter directly into the egg-yolk, since an egg



**THE LARGEST DUCK FARM IN THE WORLD.**

General view of Afton Farm. (See article "Wisdom from Afton Farm," page 395).

[Copyright.

for really fresh eggs; nor that the consistency of the white or albumen was quite unchanged, for after a time the albumen of some of these eggs becomes rather more dense and elastic than is natural.

When tested for formaldehyde, by the Rimini and other tests, the eggs of this series yielded abundant quantities. Indeed it was found that such eggs were spontaneously giving off formaldehyde in quantities sufficient to be absorbed by, and detected in some *control* eggs left in the same box. To my friend Professor Hugh McGuigan, of the North-western University Medical School, who is extensively studying the action and disposition of hexamethylentramine in mammals, I am indebted for

which was laid five days after the *last* feeding with urotropin gave the test for formaldehyde. Two other eggs were laid by the same hen—two and four days previously—so that the above-mentioned egg could not have obtained its formalin from albumen stored in the oviduct. In this egg, therefore, only the yolk had been exposed to urotropin, and it only could have been the source of the formalin. Two other eggs of very similar history also gave positive tests for the presence of formalin in the yolk.

The eggs dosed with the salicylate, and less markedly those dosed with benzoate, besides appearing—somewhat inconstantly—to be better preserved, as judged by taste



and smell, often showed certain other physical contrasts with the control eggs. For example, the yolks of the control eggs more often showed "adhesions" to the shells than did the dosed eggs. Of fifteen control eggs opened on October 12th and November 10th, nine showed adhesions either to shell or to the membrane of the air cavity; whereas on the same dates ten eggs dosed with salicylate and eight dosed with benzoate furnished together only three adhesions. Too, the control eggs usually contained the more liquid albumen; a difference readily observed. Finally, it was often noted that there was present in the dosed eggs more of the dense whitish albumen of the chalazæ than in the control.

Obviously all these physical differences strengthen the not very conclusive evidence of taste and smell, that the eggs dosed with salicylate and benzoate had not undergone digestion and putrefaction to as great an extent as the normal untreated eggs.

It is evident the chemical substances used in these interesting experiments had a marked influence upon the eggs, and that those from hens to whom these had been given retained their original qualities and were better in flavour and palatability after being kept for a considerable period than such as we get from fowls that had not been so fed. July eggs are not in any case good for preservation, and it may be hoped that further tests may be made with eggs laid earlier in the season. Further, at the same time there should be control eggs preserved

by other methods such as water-glass or cold storage, as the final determination must be whether those from chemically-fed hens are equal or superior to such as are kept in other ways. Upon that question there is at present no evidence available.

Such, however, would not determine the problem, for there are other considerations of importance to poultry-keepers and consumers alike. The former must enquire as to what would be the influence upon the hens of dosing them with the chemical substances named, which must be in sufficient quantity to permeate the system. Should it be that the accumulation of such elements as may be used is harmful to the system that would be a fatal barrier to its successful adoption. On the other hand, if formaldehyde or any other chemical substance is deleterious when present in food consumed continuously, then the last state is worse than the first. It is not, therefore, merely a question of chemical preservation, but of something more. I am not a chemist and do not attempt any opinion as to the effect produced in either direction, but submit that these questions have to be faced. One of the great virtues of an egg has been that, heretofore, it has proved incapable of adulteration, so long as the shell is unbroken, and that preservatives have not involved additions of alien substances. Were preservation to be effected from within, that would no longer be the case. Deeply interesting, therefore, though these experiments are, there are considerations far beyond those raised by the fact that eggs can be kept in this manner.



**A BREEDING PEN OF STOCK DUCKS.**  
(See page 395.)

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## PERSONAL LETTERS FROM AN OLD FANCIER.\*

## IV.—TO A DISAPPOINTED EXHIBITOR.

Dear Mr. Wonfour—To some extent you have my sympathy, but probably not as much as you feel for yourself. Evidently you had counted your chicken before they were hatched, and thought that Cup at Middleport Show was already your own. Perhaps you might have contributed less liberally towards its purchase had you not felt certain it would permanently grace your sideboard. When that was no longer possible and the coveted prize was snatched from your grasp by an unlooked for competitor, disappointment gave rise to anger. You felt like a fool, and looked it. May be the check was needed. It reminds me of Napoleon at Waterloo. He thought to win the battle before Blucher could arrive. Unfortunately for the great Captain and you, in both cases Blucher turned up. You have met with your Waterloo. May it not lead to St. Helena is my earnest wish. Whether that is so or not depends upon yourself. The fact is you have had things of late too much your own way, and I feel sure the lesson this should teach will be beneficial.

Let me, however, suggest that it is unwise to talk too loud in a railway carriage, even when you are angry. You did not know it but I was in the next compartment, and could hear nearly all that was said, much of which was not very complimentary to the unfortunate judge, happily not myself in this instance. Had it been so I should have come and joined your party. Listeners seldom hear any good of themselves, and less often of others. But I could not have allowed boards to divide us had I been the object of your vituperations. No doubt the anger has passed by this time, and you wish you had not said so much, especially to younger fanciers who heretofore have regarded you as an oracle. Old Solomon said, "He that is slow to wrath is of great understanding." You can apply the inference yourself. It pained me to hear you talk as you did, for you must realize it was unwise.

The fact is the Judge was right and you were wrong. That was apparent to all who were unbiased. It appeared to be a near thing but you were fairly beaten. Possibly it was the unexpectedness of a new Star arising in what has been to you a Milky Way of late, which upset your equilibrium, especially as the exhibitor owes his success to your own strain.

The birds you sold cheap last year have proved breeders of merit. It was annoying no doubt to lose that Cup, especially as your wife had arranged a place for it on the sideboard, but such are the fortunes of war. She will take it philosophically. Why couldn't you do the same?

You spoke of the victor as an upstart, forgetting that we are all that at first. Do you not remember a few years ago a certain young breeder who bought from the most successful exhibitor of that time a setting of eggs, obtained as a special favour, for which he paid what then seemed a high price. A few months afterwards the older exhibitor went to one of the early Autumn Shows expecting to win as usual. He found there a couple of entries which were at once recognised as more matured and better than his own, but evidently of the same blood, and by which he was fairly beaten. The catalogue revealed that these were from the eggs he had sold. So good were they that he knew it meant defeat all the season if in other hands, and so he bought them at catalogue price, albeit it was a very stiff one. The money thus obtained and the chickens remaining gave the young breeder his great start. You know who these men were. It is a hard lesson for older exhibitors, but all have to learn it. The juniors are as necessary to the fancy as the seniors, if not more so.

There is one thing, however, in which you had a partial ground for complaint, but not against the Judge, who had nothing to do with it. With the usual shriek about short entries, the Secretary had sent out an appeal by post and to the press, and in a letter to you he had stated there were only two entries in each of the classes you support, and that for the Cup you desired to win there were not more than fifteen competitors. So you determined to add to those already made. That made you think the prizes were certain and the Cup yours already. My dear Sir, I thought you were too old a bird to be caught with that sort of chaff. When you got there it was to find fuller classes than ever, and many of the best yards represented. But the new man beat you all, and he is doubtless exultant, as he may well be. To lower your flag and that of several others in his first season is something to be proud of. Rest assured his turn will come, and he will in time be as disgruntled as you are now. That may be some comfort. I agree, this touting for entries after the date of closing ought to be stopped.

\* The previous letters have been: No. I., "To a Young Judge," March, 1912; No. II., "To a Show Secretary," April, 1912; No. 3, "To a Lady Poultry Farmer," May, 1912. The next will be addressed "To a County Poultry Instructor," and appear in our July issue.—EDITOR.



It is an evil system, and often comes perilously near to false pretences. It is probable that if an exhibitor who had made his entries in time took an action he could cause to be disqualified as ineligible for prizes all entrants accepted after the announced date of closing. Some one should test it and I would be glad if the dodge was stopped. It would serve those exhibitors right who never enter, except at the big fixtures where they are always in time, until they can learn whether the response is good or bad. In



**THE CHICKEN'S DEBUT.** [Copyright

A familiar sight in any farm yard in May.

Natural rearing is now in full swing.

so far as that is concerned you were a consenting party.

What I specially want to ask is, were you fair to the judge, who is a worthy fellow, and as honest as any man I know? He would not do anything in the least unfair. That, however, is not everything, for an honest man is not necessarily the best judge. The two qualifications do not always hang together.

The most wonderful judge I ever knew was one who could go through a show and remember

almost every bird, even if they numbered hundreds. And when he liked each would be in its right place. One instance will suffice. It was a one-day summer show. We were talking at the door of the tent when an exhibitor came up and said, "Mr. Blank, you have not done me fair to-day?" "How's that?" was the reply. "Well my bird should have won in (say) Hamburgs, and you have put it third." "I do not think my judgement was wrong," responded the Judge "although I know the winner has one or two faults." "Will you come and go over them with me?" queried the exhibitor. "There is no need to do that" was the reply, and in a few words he pointed out where the defeated specimen had lost, when the exhibitor said "I never thought you would have seen as much." He knew that it was all true. Unfortunately the scrupulosity of the judge was far and away below his ability.

My friend, in your case the judge was right. You recounted all the wins your bird had made, it had never been beaten, and so on. What that has to do with it I cannot for the life of me tell. There is no House of Lords in poultry showing. If there were we may as well ask exhibitors to place their own awards, and give themselves all the prizes. Whether that would satisfy some of them is doubtful. They would probably kick themselves for not taking more. The bird that beat yours was the best that day, which was all the judge had to decide. What was the case last week or may be next month had nothing to do with it. It was then and there that determined the question.

This all reminds me that you have acted occasionally as a judge, from which you should have learnt something. Even had the adjudicator of whom you complained so bitterly made a mistake, I should have thought the knowledge of how difficult was his task would have led you to a charitable view, even though it missed you the coveted cup, partly paid for from your own pocket. What did others say about you then? Recall what happened the first time you acted. It was at a big show at which I was engaged on other classes, how you shook all over, your knees trembled, and you could scarcely see the pens. Instead of the sharp distinctions you had expected to find, and which had often before been expiated upon, after the judges had made their awards, the birds all seemed curiously alike, and how that too proud to ask anyone to help you, the result was a fiasco, for which you got hauled over the coals pretty smartly and deservedly. Had you come to me then, as you have been wise enough to do since, when in difficulty, such might have been avoided. That is not a novel experience, but one which should teach a man humility for ever. The one bright



feature of growing older is enlargement of vision and of charity. Unless however, such experience teaches us to meet all conditions and circumstances, to view our fellows with kindness, it is not worth much. Remember these facts even although you did lose the Cup.

There must always be a risk in exhibiting, even to the extent of variations in awards. One bird of mine many years ago won a Cup at the great show of the year, and a week later only got *v.h.c.* under another Judge at a local exhibition. May it not be that both awards were correct? Even if it were not so I am sure that the judges in each case did their best. What more can anyone expect? Perhaps I was to blame. Instead of sending another specimen as intended to the smaller contest, the victor was dispatched after living several days in the great gathering, and before he had recovered from the strain of the journey. That explains many defeats of prominent winners.

Unfortunately exhibitors often expect a judge will think of what was or will be, and not what is. I have known them grumble because a bird in full moult was put back. "Once a winner always a winner" is, happily, not a law of poultrydom. You doubtless have heard of a doctor, attending the funeral of a patient, described as "Cause following effect." Many defeats in the show pen are the effects, the greed of the owners being the causation.

The elusiveness of success in exhibiting is its great attractiveness for true fanciers. If they were sure of winning much of the pleasure would be gone. Unfortunately the curse of the fancy to-day is its professionalism. Some prominent exhibitors are merely dealers, not breeders. Not a few buy all and never breed. They so work the fowls by over-showing and by special feeding that these are almost incapable of reproduction, and their chickens are worth nothing. The dealer or professional exhibitor cares for the money and nothing more. It is the prizes he is after, and the coin which he can glean as a result by after sales. With him it is a business. So long as it is honest no one can, or would wish to, complain, even though not the ideal of the fancy as such, which should be recreative as a hobby or pleasurable pursuit. But if the professional spirit is given full play, then the win is everything, because losing means deprivation of income. Such men follow the old cynics advice to his son "Get on, honestly if you can, but get on," and thus read the precept "Win, fairly if you can, but win."

The true fancier only desires his birds to be placed in accordance with their merits, but the

other class care not a hang about that. I once remember taking cup for a bird when it was evident another was better and ought to have had it. That cup gave me no pleasure, and I presented it to another show very shortly afterwards. There is no need for even the professional to limit his horizon. Many do not. They retain the true fancier spirit. It is because I fear you have for the moment, let us hope temporarily, lost the right view that I say thus much.

Prizes will often come to the exhibitor even beyond his deserts. It is a see-saw which works both ways, with a fair amount of evenness at the season's end. Ask yourself how often have you won a prize which in your heart you know should have gone to another bird? That should compensate you when disappointments come.

An old friend of mine once made a bargain with his wife, who had a poor opinion of shows, that he would give her every prize which he acknowledged was not fairly deserved. It nearly ruined him that season, and how many dresses his wife had out of the cash was never told. But it taught him what he had not realised before. He cried off and paid heavy smart money. Another friend, a business man, agreed to allow his wife as pin and dress money all the five shilling pieces taken over the counter. It seemed as if there was a sudden influx of these coins. He had never thought the mint issued so many crowns. Realisation is not always in conformity with anticipation.

There is another matter about which I may take this opportunity of saying a word in all sincerity and kindness. You saw how the judge hesitated before deciding about your exhibit which missed the cup. That was not, as supposed, from any doubt as to which should be selected, for upon such question he was decided all the time. His anxiety was whether he should disqualify your bird or not. You had a near shave, and was accorded the benefit of the doubt, which saved you, whether rightly or not you know better than anyone else. And this is not the first time either.

I am sure you are no worse in this respect than your competitors, and you will say that "when you go to Rome, do as Rome does." That is no excuse. You are not bound to visit the Eternal City. There is such a thing as self respect. This is a question which has always been difficult of solution. But we seem to be as bad, if not worse, than ever.

Some years ago a proposal was made to which I gave cordial support, that there should be formed a Judges' Society or Club, from which I



had hoped we should by unity of action be able to remove this stigma, to sternly penalise all such practices. Unfortunately, it came to nothing. Something will have to be done.

Remember that, if you are not careful, the time will come when punishment will fall. You will not then be like the Milesian who, travelling abroad, got into a quarrel with an excitable native, and was challenged to a duel, which had to be accepted. All was arranged, the place chosen, and the seconds appointed. Then the Irishman made a proposal. He suggested instead of firing at each other, and perhaps be guilty of murder, they should draw lots, the loser to retire and shoot himself. This

your notice. Is this a wise policy for your own sake? Give the younger and smaller men a chance. It will be more profitable ultimately. Nothing stimulates sales so much as a realisation on the part of purchasers that they will not always have you in competition.

Long, long ago, the greatest breeder and exhibitor of his day, who kept many breeds, told me that he determined to show his superiority by winning wherever that was possible, and he did so. Opponents went down like ninepins. He took hundreds of prizes in the two seasons during which this policy was pursued. His pride and reputation were gratified, but the financial loss was very great.



**MARCH-HATCHED WHITE WYANDOTTES.**

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The above photograph from a Worcestershire correspondent shows what can be accomplished by good management. The birds, though not three months old, are nearly full size.

novel suggestion was agreed to, and the Green Islander lost. After bidding farewell to all, and cordially shaking hands with his foe, he retired to a room for the act of self destruction. All waited with strained attention the result. A shot was heard, they rush to and opened the door, and then saw the Irishman standing in the midst of the smoke from his pistol, who smilingly greeted them by saying "Begorra, Oi missed myself." Should such a day as I have indicated arrive the weapon will not be in your own hands. There will be no lucky escape.

One thing more may be said. I have noticed that of late you have been showing all over the country, at little fixtures which should be beneath

Sales fell to the extent of several hundreds of pounds each year. Buyers could be obtained for low priced birds, but for the higher rated specimens there was no demand. Others have learnt the same lesson on a smaller scale.

If I have spoken too plainly excuse me. I do it in all kindness, and for your good—whether you see it or not.

Yours candidly, ENOS MALPAS.

P.S.—You have probably heard of the school boy's "howler." When asked why the Psalmist David said "he would rather be a door keeper in the House of the Lord," he replied "So that he could go outside during the sermon." I have you fixed. There is no escape in that way.



## THE YOKOHAMA FOWL.

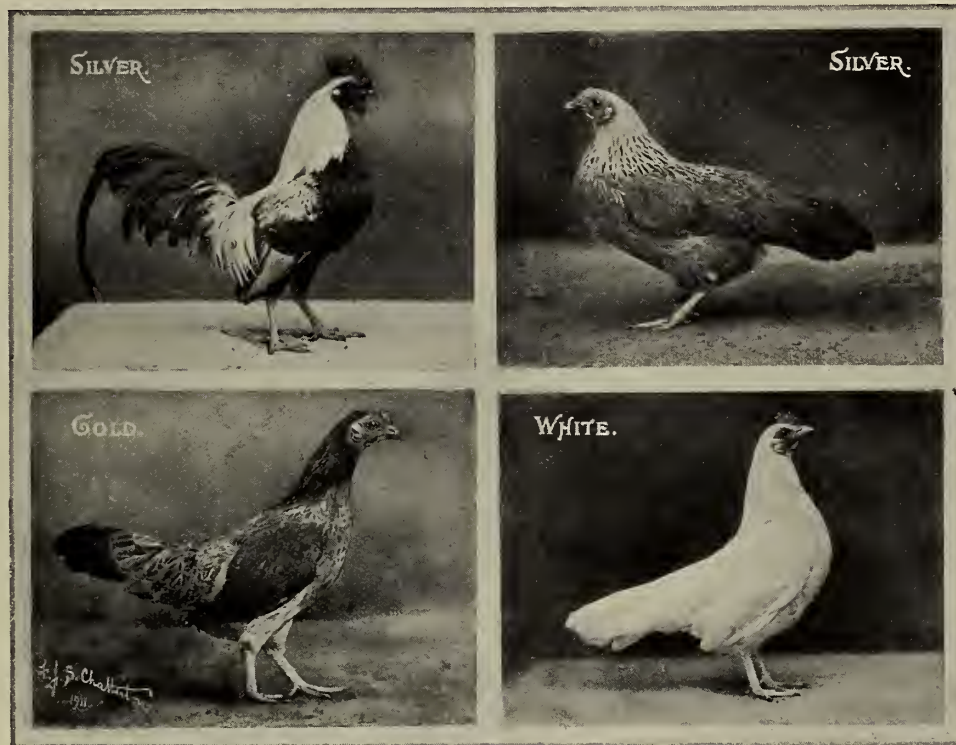
By MRS. L. C. PRIDEAUX.

*President of the Yokohama Club, 1910-11-12.*

IT was in the early '70's that Yokohamas were first imported into England, but in Japan they have been bred for their feathers and their fighting qualities for many centuries. It was not till 1907 that there was a concerted effort made in England to popularise this breed, and it was in the early summer of that year that the first meeting was held with a view to the formation of a club. This soon took shape, and is now a flourishing concern, boasting of upwards of 50 members. All the principal shows have classes for these birds, and there are often as many as 60 to 70 exhibits. There is no doubt that they attract more attention

also say that I have kept these birds for upwards of 10 years, and never keep any other bird on the place.

Yokohamas are prolific layers, as well as being most excellent sitters and mothers. In fact, they form a most interesting hobby for anyone in the country, and they attract more attention when they have the run of a field near any thoroughfare than any species of live stock that I know. I have known them kept in the back yard of a workhouse in the East End of London with great success, and I have known aviaries of them in large establishments which prove wonderfully attractive to all



Some of the chief varieties of the Yokohama, about which Mrs. Prideaux writes so interestingly on this page.

than any other birds, for they not only appeal to the poultry fancier proper, but also to those who attend a poultry show purely out of curiosity and for want of something to do.

Their graceful carriage, beautiful colouring, and profuse feathering make them most noticeable in their pens. These birds are worth cultivating from every point of view. One would be surprised if one could see the number of letters that I receive from people saying that they keep many different breeds, but find Yokohamas far the most interesting. I have frequently been assured that the Yokohama cull is the best petit poussin or spatchcock that can be eaten. I endorse all these remarks. I can

visitors. They look particularly well in such a place with an admixture of fancy pheasants.

They are a keen cult on the continent, where they are divided into two varieties. (It is best they should be, though at present in England we class them together.) The varieties are distinguished by the single comb birds being called Phoenix, and the pea-comb birds Yokohamas. In Japan they are certainly quite distinct, but in England by mixed breeding we have somewhat combined the qualities of both in each, and this would take some generations to breed out.

The single combs were more especially bred for their feathers in their native land, whilst the pea-



comb are the true game fowl of Japan, and are much esteemed for their fighting qualities.

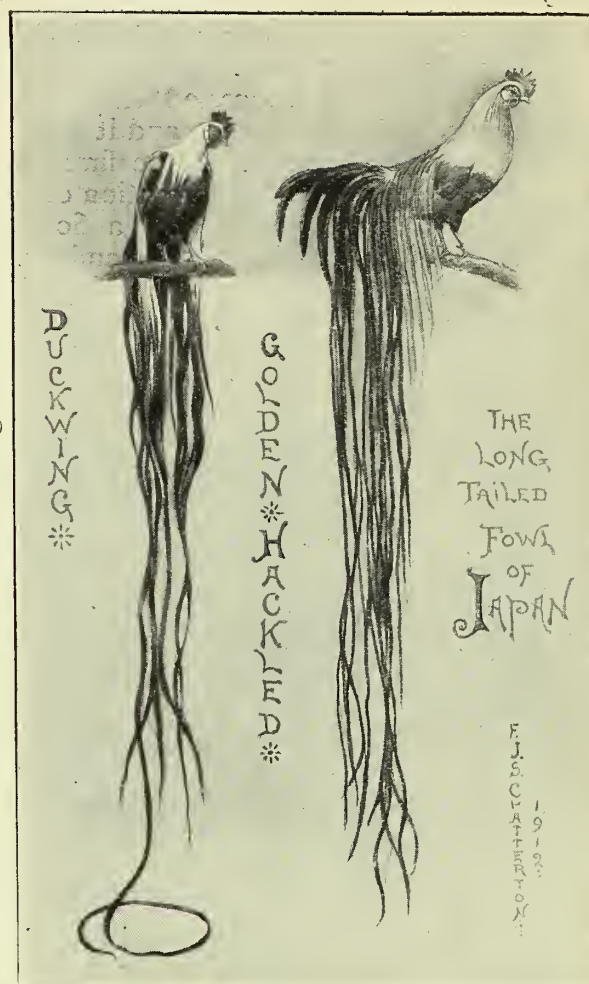
This one notices although the breeds are not distinct in this country. A simple comb cock is often a terrible coward, but I have never seen a pea-comb bird shirk a quarrel, though I do not look upon them as pugnacious. I think the hens show their fighting qualities more aggressively than the cocks. To refer again to their being put with pheasants in an aviary, their temperament is there seen to be more for peace than war, and I am sure they over-awe the pheasant and quell the frenzied attacks which pheasants are apt to make upon all and sundry. But I think the place of all others to see the Yokohama at his best, is on a free grass run, say park or lawn. His sweeping feathers and beautiful colouring make quite a unique feature, and his hens so demure in colouring, and so beautiful in line and carriage make an exquisite foil to their lord and master. Yokohamas are very dignified, and enjoy being looked at, for they are seldom wild. They fly well, and are fond of roosting in the trees, but they never stray. They require no special care, but they undoubtedly thrive best on good but not fattening food. When the breeding season comes round the hens sit well, and do better if they are left as far as possible to make their nests in nature's way. When the little ones arrive, the mother is usually very attentive, but being active she is apt to take the young ones too far, so she is better confined in a coop whilst the chicks can roam about at will, returning to her to be brooded. They are like young pheasants in appearance and habits, and they should not be allowed to get into long wet grass. They do well on ordinary chick food moist and dry, but it should be as nourishing as possible for we must not forget that they have a wealth of feather to make as well as bone and flesh.



Their most delicate time is when they are moulting their chicken feathers. During this period they are better kept as dry and warm as possible. I find the whites are rather more susceptible to chill than

the coloured ones—this may be fancy, but it is my idea.

There is a use for Yokohamas coming more and more into vogue; in home farms where poultry is bred in large quantities for the consumption of

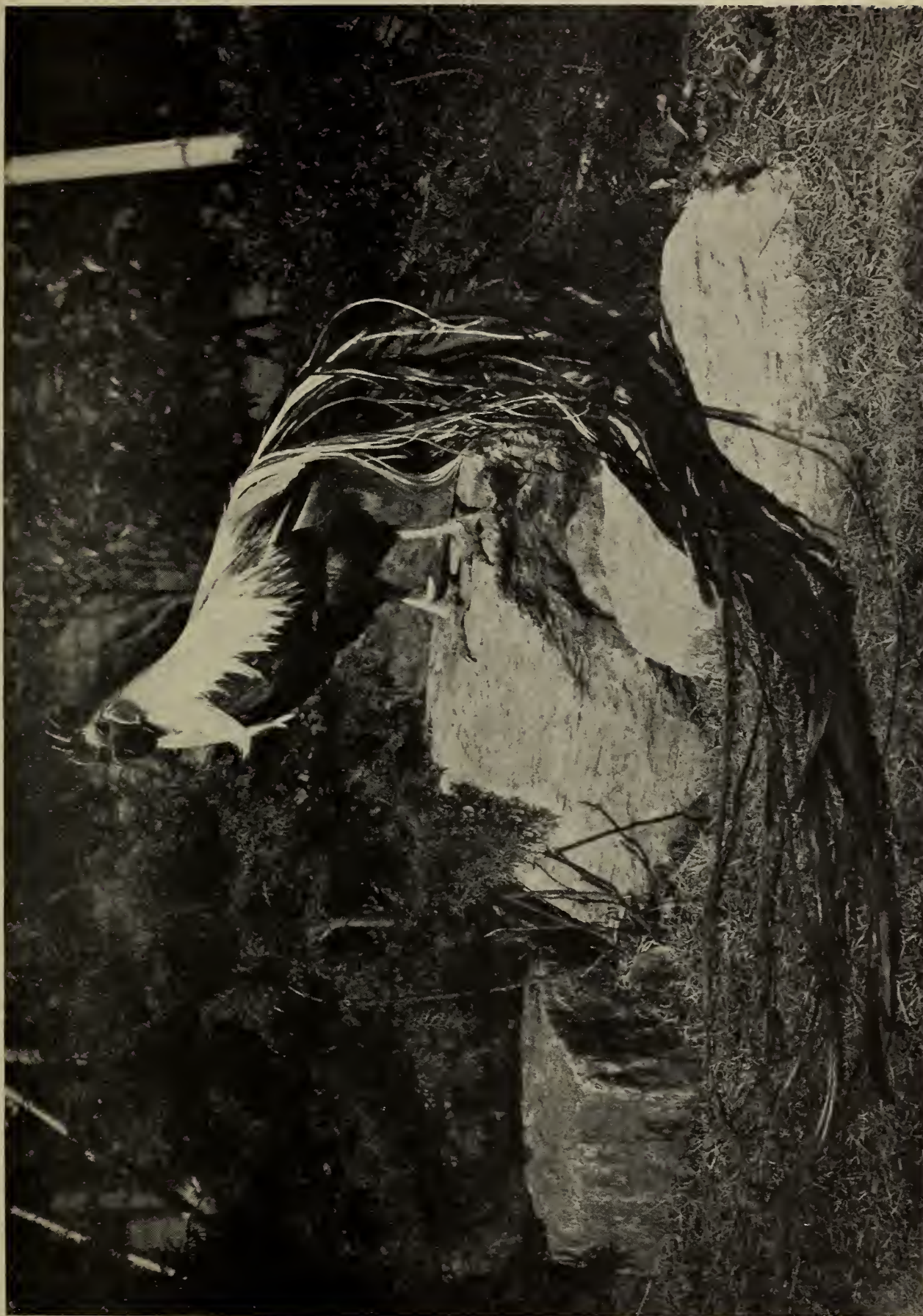


the house. The family take exception sometimes to what they call "those ugly long legged things," not knowing that the cocks they are apostrophising are the means of making the beautifully tender chickens they eat with such a relish. Not the most exacting employer will complain of ugliness in the poultry yard when the Yokohama is imported there. And a few of his hens will be a help when the hatching season comes on.

It only remains for me now to mention one more use which these birds can be put to, namely, millinery. The long feathers are used for our military headgear; these and the breasts, also make perfect trimmings for ladies' hats; and hackles, of which they have an abundant quantity, and unique quality, are eagerly snapped up by all feather merchants.

Each fancier knows the colour that he likes best, but, I find, that in turn, I like them all, and keep all. White, golden, and silver duckwing, spangle, black-red, blue-red, and pile.





**A JAPANESE LONG-TAILED YOKOHAMA COCK, SILVER GREY VARIETY.**

[Copyright.

The magnificent tail of the Yokohama Cock is one of its most marked features, frequently extending to over twenty feet.  
Two beautiful specimens are also shown on the opposite page.



## OUR POULTRY IMPORTS.

Facts and Figures showing our imports of eggs and poultry during 1911.

by "Statistician."

THE ordinary trade and navigation returns only show the leading countries from which imports are received. For instance, in eggs seven countries are separately enumerated, and in table poultry four, all the others being grouped into what is called "other countries." It is true that so far as eggs are concerned the last named only represent 7.31 per cent. of the total, but in the table poultry the proportion is much larger, upwards of 18 per cent. The basis of discrimination would appear to be indefinite. For instance according to the following tables with regard to eggs Egypt sent us a greater volume of supplies, though less in value, than did Germany, the

Netherlands, or France, but has not the separate enumeration given to these. In order, therefore, to be able to show exactly whence eggs and poultry were received last year, I have obtained from the statistical office of His Majesty's Customs, a complete list which is given below. This does not, of course, include Irish supplies, but those alone which are imported into the United Kingdom.

Taking eggs in the first place I have worked out the index numbers of quantities, on the basis of Russian supplies which bulk largest. In 1911 of the total imports Russia sent us 52.69 per cent., or more than all the rest of the world. The next country in order was Denmark, whose volume of

TABLE I. EGG IMPORTS, 1911.

*Showing each Country, Quantities, Index No., Total Values, and Per Great Hundreds.*

COUNTRY.	QUANTITIES IN GREAT HUNDREDS.	QUANTITIES INDEX NUMBERS.	TOTAL VALUES IN £'s.	VALUES PER GREAT HUNDREDS.	
				s.	d.
From Russia ... ..	10,041,890	100'00	3,796,408	7	6½
" Denmark ... ..	3,992,986	39'76	2,030,607	10	2
" Austria-Hungary ... ..	1,022,554	10'18	428,668	8	4¾
" Italy ... ..	771,107	7'68	366,859	9	6
" Egypt ... ..	687,335	6'84	222,853	6	5¾
" France ... ..	652,036	6'49	303,515	9	3¾
" Netherlands ... ..	607,364	6'05	282,805	9	3¾
" Germany ... ..	577,545	5'75	233,142	8	1
" Sweden ... ..	344,289	3'42	157,067	9	1½
" Morocco ... ..	214,960	2'14	84,967	7	10¾
" Belgium ... ..	49,222	0'49	20,293	8	3
" Spain ... ..	23,137	0'23	9,709	8	4¾
" Canada ... ..	14,709	0'146	7,465	10	1¾
" Portugal ... ..	12,528	0'12	5,694	9	1
" Turkey, Asiatic ... ..	11,100	0'11	3,220	5	9½
" United States of America	9,349	0'093	4,423	9	5½
" Roumania ... ..	8,628	0'086	3,517	8	1¾
" Gibraltar ... ..	7,860	0'078	3,181	8	1
" China ... ..	4,094	0'0407	1,091	5	4
" Bulgaria ... ..	1,836	0'0183	647	7	0½
" Servia ... ..	1,824	0'0181	773	8	6¼
" Channel Islands ... ..	560	0'0056	268	9	7
" Canary Islands ... ..	360	0'0036	120	6	8
" New Zealand ... ..	270	0'0027	130	9	7½
" Turkey, European ... ..	240	0'004	80	6	8
" Norway ... ..	60	0'0006	25	8	4
" Madeira ... ..	32	0'0003	15	9	4¼
" Cape of Good Hope ... ..	22	0'0002	13	11	10
Totals ... ..	19,057,897	—	7,967,555	8	4½



supplies was 20.95 per cent. Only one other, Austria-Hungary, exceeded 5 per cent. Thus it will be seen that these three countries accounted for nearly 80 per cent. of our foreign and Colonial egg imports. I have, therefore, made Russian supplies the Index Number, 100, and the other figures given in the second column of Table 1 mean that for every 100 eggs received from Russia each of the other twenty-seven countries represent-

latter, even as far apart as the United States, New Zealand and China, the total amount is infinitesimal. So far as British Possessions are concerned out of every thousand eggs imported there were not quite one and quarter from the various parts of the Empire. London alone consumes as many eggs each day of the 365 as all the Colonies sent us during the entire year. It is not a question of price, for these rank well in that respect.



*\* Including British Possessions, The Peninsula & Balkan States.*

**Diagram showing the comparative volume of imports of eggs and poultry from each country in 1911.**

The diagram indicates the volume of imports of eggs and poultry in 1911, as represented by the values. It should be kept in mind that if quantities could be represented Russian supplies would bulk even more largely than is here the case. Even as it is Russia is nearly equal to all the world combined, except the United Kingdom itself. Scandinavia makes an excellent second, and includes Denmark, which, as a matter of fact, is responsible for 93 per cent. of the supplies.

[Copyright.]

ed supplied us with the number named in that column. The fourth column gives the average values per 120.

It will be seen that the first ten countries on the list are responsible for 99.24 per cent. of the total imports, leaving only 0.76 per cent. for the other eighteen countries. Wide though the area of the

The range of prices is very great, varying from the Chinese at 5s. 4d. per 120 to those from the Cape of Good Hope at 11s. 10d. Much, however, depends upon the period when received, as well as the distance transmitted. If, as is usual with several of the countries, forwarding mainly in the winter months these are naturally high. Taking



the first ten on the list, those which alone count, the following is the order in respect to prices: Denmark, Italy, France and Netherlands (equal), Sweden, Austria-Hungary, Germany, Morocco, Russia and Egypt respectively. It is not a little surprising that Italians should be in advance of those from France and the Netherlands, but such is the case, that may be due to the rapid decline in quantities. Omitting Russia, Egypt and Morocco from these ten, the average values of supplies from what may be termed Western Europe work out at 9s. 6½d. per long hundred.

TABLE II. POULTRY IMPORTS, 1911.

*Showing each Country, Values and Index Numbers.*

COUNTRY.	VALUES £	INDEX NO'S (VALUES.)
From Russia ...	404,994	100'00
„ U. S. of America ...	137,469	34'027
„ France ...	116,267	28'777
„ Austria-Hungary...	92,597	22'918
„ Italy ...	81,903	20'273
„ China ...	48,659	12'044
„ Canada ...	10,971	2'715
„ Belgium ...	9,953	2'463
„ Germany ...	6,791	1'68
„ Netherlands ...	5,159	1'274
„ Norway... ..	1,308	0'322
„ Servia ...	630	0'156
„ Denmark ...	556	0'136
„ New Zealand ...	445	0'11
„ South Australia ...	141	0'035
„ Iceland & Greenland	127	0'031
„ Channel Islands ...	85	0'021
„ Sweden ...	53	0'013
„ Portugal ...	43	0'0106
„ New South Wales	19	0'005
„ British India ...	14	0'003
„ Victoria ...	10	0'002
„ Switzerland ...	3	0'0007
TOTAL ... ..	918,197	—

In Table II. are given relative figures, as far as available, for Table Poultry. Hitherto values alone have been recorded in the Monthly and Annual Returns. That omission however, has been now remedied. From January 1st of the current year weights are also stated. In future, therefore, we shall be able to make comparisons as to values per cwt.

Russia as shown in Table Poultry, sends us the greatest quantity. I have here also made it the basis in working out the calculations for Index Numbers given in the last column. What this means is that for every £100 paid to Russia for dead

poultry we paid the United States £34, France £28 15s., China £12, Canada nearly £2 15s., New Zealand about 2s. 2d., and Victoria a little more than ½d. Of the total imports of poultry Russia sent us 44.11 per cent., whereas from all the British Empire outside the United Kingdom we only received 1.27 per cent. that is, for every £100 paid to Russia for this product the imperial payment was £2 17s. 8d. It will be seen that the first six countries enumerated in the table, namely, Russia, the United States, France, Austria-Hungary, Italy and China, sent us poultry valued at £881,889, out of a total of £918,197, or 96.06 per cent, the other seventeen countries being responsible for 3.94 per cent. Whether Iceland and Greenland are going to do more remains to be seen. The Danish government some time ago sent its poultry expert to Iceland. One point, however, remains to be mentioned, namely, that last year the re-exports of imported poultry were valued at £78,183, but as I have no means of discriminating such re-exports have had necessarily to be omitted from my calculations.

Combining eggs and poultry together, in some cases grouping the countries, the results are very interesting, as shown in Table III, which refers to values only.

TABLE III. IMPORTS OF EGGS AND POULTRY, 1911.

*Showing total values and percentages in accordance with areas.*

Countries and Areas	Total Values	Percentage of Values
	£	
Russia	4,201,402	47.28
Scandinavia (Denmark, Sweden and Norway)	2,189,743	24.64
Austria-Hungary	521,265	5.86
Italy	448,762	5.05
France	419,782	4.72
Low Countries (Belgium and Holland)	318,210	3.58
North Africa (Egypt, Morocco and Islands)	307,955	3.46
Germany	239,933	2.7
United States of America	141,892	1.57
Asia (China and Turkey)	52,970	0.59
British Possessions	22,742	0.25
The Peninsula	15,446	0.17
Balkan States (Bulgaria, Roumania, Servia and Turkey	5,647	0.06

With the £3 of poultry received from Switzerland, we have the grand total of £8,885,752.



## WISDOM FROM "AFTON FARM."

How Mr. S. B. Twining has built up the largest Duck Farm in the world.

During a visit to America some years ago we had the opportunity of visiting the "Afton Poultry Farm," near Yardley in the State of Pennsylvania, when we were much impressed with the practical yet progressive spirit evinced in its conduct, as with the quality of the stock thereon. It is with pleasure therefore, that we give in this issue a series of



**Mr. S. B. TWINING,**  
Proprietor of Afton Farm.

illustrations representing parts of this successful plant.

The founder, nearly thirty-five years ago, was the late Mr. E. W. Twining, who set out to establish a business, not to attain a mere ephemeral burst of glory. He was out for a sure stream of dollars year by year, rather than to make a splash. Hence to learn the business by accumulation of experience added to that already at command, led to the adoption of sane methods. There was no plunging, no huge expenditure of capital, no anticipation of sudden wealth. Slow but sure, appears to have been his motto. To that end, whilst the development of good stock was imperative, other

considerations were the facilities available, and what were the market requirements. All these influences were studied in order that they might fit one into the other. The result has been in his own hand first, and later in those of his son, Mr. S. B. Twining, the present proprietor, a steady success, enhanced of late years by the increase of opportunities as an effect of the great advance of the poultry industry in the United States. Now the extent of business done, equally in what may be termed the stock side, and that of ordinary marketing, is proof of the soundness of the enterprise. When it is stated that upon this farm something like fifty thousand birds are annually hatched, it will be seen that it has the seeds of its speedy dissolution unless it is upon an economic basis. That fact is evident. A small plant may be subsidised for a few years, or even a larger concern by a millionaire, but a large poultry farm if it loses at all, involves too heavy sacrifice to continue for long.

The market qualities count first and foremost at Afton Farm. Shipments of eggs and poultry are large and constant. They bulk largest in the returns. But as must always be the case with poultry farms, on what may be termed specialist lines, an important branch is the sale of stock, eggs for hatching, and day-old chickens, for which the demand has been very large for many years. Mr. Twining would be foolish in the extreme if he did not take advantage in this way of his breeding. The money thus received is a distinct addition to his returns. In fact, that is one of the justifications for such plants as this, contributory to the success and work of ordinary poultry keepers.

What has impressed us much with the Afton Farm is the absence of extravagant statements in the various publications issued by Mr. Twining. For instance, in his book "Poultry Truths" a somewhat ambitious title, he says:

The poultry business is divided into two branches, the Fancy or Show, and the Utility or Market. Many breeders of the fancy endeavour to combine Utility and Fancy in the same birds, and they claim to have accomplished the feat. We have visited many plants, but have never seen this claim substantiated. In fact, the advocates of the combined Fancy-Utility birds are fast losing ground. You can breed Utility birds of quality, but you cannot breed Fancy-Utility birds any more than you can breed draft horses and race horses from the same stock. The very foundation of all things tell us the impossibility of our serving two masters.

The work from which the above has been taken is full of sensible advice, and is well illustrated with diagrams and photographs. As a further example of its wisdom we quote again.

Mr. Beginner, at this point I want to hold up my hand in warning, and if you will but heed, you will be saved much money and inconveniences. *Go it Slow.* Too often I see or hear of a party who would have made a real valuable addition to the poultry industry if he only had the patience to cave in slow instead of plunging.



Poultry keeping is more than a business, it is a dealing with life. There is much for the beginner to learn, step by step, and if he jumps in too big, his lesson is more than he can master, and you hear of another poultry failure. Don't insist on putting all your building up the first year. You will regret it. Wait until you have had some experience, and actually know what you really need. Make haste slowly.

Such are wise words. The desire for immediate big sales sometimes manifested is entirely absent.

The following extremely interesting feed formulae have been compiled by Mr. Twining, and they should prove of the greatest value to our readers.

*Baby Chicks*—MASH: Mix Oat Meal with fresh ground meat until you have a crumbly chick food. Use first three days only. After that, Growing Feed. Grind cheap cuts of fresh meat in an Enterprize meat chopper. SCRATCH: 2lbs. cracked wheat, 1lb. cracked corn, 1lb. cracked hulled oats, 1lb. broken rice, 1lb. hemp seed, 1lb. millet, 1lb. granulated meat scrap, 4oz. granulated charcoal, 4oz. granulated oyster shell, 4oz. clear, coarse river sand.

*Growing Chicks*—MASH: 3qts. wheat bran, 1qt. wheat middlings, 1qt. corn meal, 1qt. beef scrap,  $\frac{1}{2}$ pt. linseed meal,  $\frac{1}{2}$ pt. Blanchford's calf meal, 3qts. cut clover, dwarf Essex rape, lawn clippings, &c. Water enough to form a moist crumbly mash. This varies according to how much moisture there is in the clover, etc. In winter it is dry, but when possible the green fresh cut article should be used. If you prefer to use the above as a dry mash in hoppers, double the amount of linseed meal. SCRATCH: 3lbs. wheat, 1lb. medium cracked corn, 1lb. clipped oats, 1lb. cracked Canada peas, 1lb. Kaffir corn. Grit, charcoal, oyster shells and meat scrap should be kept before the birds in hoppers all the time.

*Fattening Chickens*—MASH: 8qts. corn meal 4qts. wheat middlings, 2qts. wheat bran, 1qt. Blanchford's calf meal, 2qts. green, finely cut dwarf Essex rape. When not obtainable use Alfalfa. Mashers for fattening should always be moist. SCRATCH: 4qts. cracked corn, 2qts. buckwheat, 2qts. wheat. Give fattening stock a scratch once a day to keep up their appetite.

*Capons*—MASH: 2qts. wheat bran, 2qts. wheat middlings, 2qts. corn meal, 3pts. beef scrap, 1pt. lin-

seed meal, 1pt. Blanchford's calf meal. Water enough to make a crumbly mash. SCRATCH: 2lbs. wheat, 2lbs. cracked corn, 2lbs. buckwheat, 1lb. clipped oats, 1lb. Canada peas.

*Breeding Hens*—MASH: 2qts. wheat bran, 2qts. wheat middlings, 1qt. corn meal, 1qt. gluten meal,  $\frac{1}{2}$ pt. Blanchford's calf meal,  $\frac{1}{4}$ pt. linseed meal, 1 $\frac{1}{2}$ pts. beef scrap. Water to mix into a crumbly mass. SCRATCH: 3lbs. wheat, 2lbs. cracked corn, 3lbs. clipped oats, 1lb. buckwheat,  $\frac{1}{2}$ lb. sunflower seed.

*Laying Hens*—MASH (in Winter): 8qts. corn meal, 8qts. wheat middlings, 8qt. wheat bran, 1qt. Blanchford's calf meal, 2qts. short cut Alfalfa, 8qts. green cut bone. Mix until you have a crumbly mash. The meat has moisture enough to produce this. If you prefer to feed a dry mash in hoppers, feed the green cut bone separate and add 4qts. of linseed meal to the mash. (In Summer): 4qts. corn meal, 6pts. wheat middlings, 6qts. wheat bran, 1qt. Blanchford's corn meal, 2qts. beef scrap, 10qts. green Alfalfa, cut fine. SCRATCHES, in the Fall: 4lbs. clipped oats, 4lbs. wheat, 2lbs. sunflower seed, 9lb. buckwheat. In Winter and early Spring: 4lbs. clipped oats, 4lbs. wheat, 4lbs. coarse cracked corn, 2lbs. buckwheat, 1lb. sunflower seed. In Warm Weather: 4lbs. clipped oats, 4lbs. wheat, 1lb. coarse cracked corn.

*Ducks*—NURSERY DUCKLINGS: Boil the clear eggs from the incubators and grind them in an Enterprize meat chopper, mix with this oatmeal until you have a crumbly mash. Feed the first five days. GROWING DUCKS: 6qts. wheat bran, 2qts. corn meal, 2qts. middlings, 1qt. low grade flour, 5qts. fine cut green dwarf Essex rape. When you cannot get it use clover. 1qt. beef scrap, 1pt. grit, ground oyster shell and river sand which has been mixed in equal parts. FATTENING DUCKS: 4qts. corn meal, 2qts. low grade flour, 1qt. bran, 3pts. beef scrap,  $\frac{1}{2}$ pt. grit, shell-sand mixture, a little cut greens to make the food tasty. BREEDING DUCKS: 2qts. wheat bran, 2qts. wheat middlings, 2qts. low grade flour, 2qts. whole corn, 4qts. whole wheat, 4qts. corn meal, 8qts. cut dried clover, 3qts. beef scrap, 1qt. grit-shell-sand mixed in equal parts. All duck foods should be mixed moist.



Rearing Ducklings in the open at Afton Farm. An interesting example of American enterprise. [Copyright.



## THE FANCIER'S YARD IN JUNE.

Some practical hints on June work.

BY WILFRID H. G. EWART.

FANCIERS' yards present a very pleasing aspect at the present time. Dotted about the meadow-land are scores and scores of chickens, varying in size but alike in colour, and bearing the refined and delicate stamp of good breeding. White Wyandottes illustrate the effect I mean. Could anything be more attractive than the pure white of shapely chickens against the new green, with a further contrast of bright yellow legs and cherry-red faces? The whole thing is so captivating on a sunny morning that I doubt not many and many a sceptic has been caught by it in the meshes of poultrydom. In fact the sheer health and bloom of his stock is, I believe, one of the professional's largest advertisements. At all events those very traits excite the keenest envy in amateurs whose fowls do not bear comparison favourably. And in going round such an establishment it is natural to enquire the means by which this supreme appearance of health is attained. Curiously enough, nine times out of ten, the question is asked, "hav'nt you some secret receipt for making your birds look so nice?" Usually it is vain for the owner to reply that he possesses no secret of chicken-rearing so valuable as a careful interpretation of the best up-to-date methods. The novice will not believe him, treasuring the conviction that there must be some back-stairs means of securing such perfect colour and bloom.

Of course, the real and only secret—if you can call it a secret—is health, pure and simple. Good feeding, good housing, and a thoroughly healthy environment, all combine to produce a certain cleanliness and brightness, and clearness of colour and comb, which could not otherwise be attained. As a rule, the amateur falls just short of this condition. His birds are not exactly ill, nor yet really unhealthy, but still they lack all that bloom. How often one sees them; chickens two or three months old manœuvring about rather aimlessly, creeping discontentedly, with sallow faces and plumage inexplicably soiled, looking not unlike spoilt and overfed children. Let us consider some of the factors which contribute to this result.

First, I think, there is the question of environment. So often novices—with excusable lack of judgment dangerously overstock their land. Fresh, sweet soil is one of the essential conditions for rearing chickens which hereafter are to figure in the show-pen. That is why all the big fanciers set aside a certain area of ground—four or five acres perhaps—which is in full use only three months out of the twelve, lying fallow for the greater part of the remainder. When the chicken season comes round the turf is green and fresh, and can carry a very much larger stock than would otherwise have been the case.

Another common failing in unprofessional establishments is improper housing. Still, I find, people

cling to the old-fashioned "box" houses with glass windows and half-a-dozen holes for ventilation. The atmosphere of these is nowhere good, but it is worse and heaviest where the birds sleep on the floor in a corner. Under such conditions growth is retarded by the heavy atmosphere. Light too is as essential to animal as to plant development, and there is precious little light in the old-fashioned stamp of fowl house.

And then there is the feeding. It may seem odd but feeding is nowhere more certainly reflected than in a chicken's face. The face which continually "blushes" indicates the effects of a too stimulating, improperly balanced diet; the face with an obvious bluish tinge usually means over-feeding, lack of exercise, and consequent congestion. The listless air, the blase attitude at meal-times, all indicate overfeeding. And this is the curse of inexperience. Feeding chickens and fowls is so largely a matter of practice; practice means a vast difference but common-sense goes a long way too.

Of course, the kind of food is another thing. To the novice, it is full of mysterious secrets. And yet the only "secrets" which produce dairy winners are good whole biscuit-meal, Sussex ground oats or Scotch oatmeal, wheat or groats, and miln—plenty of miln. If you call miln a secret growing food then you've got to the bottom of the matter, for at all events in Rocus, Wyandottes, and Orpingtons, most of the largest Fanciers depend upon it. There is no finer staple diet for the pick of one's stock than a bowl of bread-and-miln every morning; it may be expensive but it acts as an appetiser and a growth-promoter and "conditioner" (better than any patent pills) into the bargain.

The pick of one's stock? Yes, the time has arrived when the fancier keeps his eyes open for merit among the early birds. It is curious how that merit gradually develops in the different breeds. In the whole-coloured breeds it is much more difficult to determine with accuracy at any early age, than where there is barring or lacing or pencilling. White Wyandottes and Black Orpingtons are peculiarly deceptive, for at four months or so there are many birds which, partly through lack of tails, present a grand short type with first-rate colour, and rejoice the heart of their owner. He tells everyone he has a chicken-crop of exceptional promise this year. What a difference the next couple of months make! Growth is an unaccountable thing for it fills out unexpected places, neglecting others; and so shape is completely altered. Markings are different. Experience teaches that a certain type of bird will surely make up into a good one. This sort is usually lanky, ugly, and raw, flat throughout, but generally carrying plenty of bone. Experience teaches also that markings seldom change. The finely-barred, good-coloured Rock—which can be discerned almost before he leaves the hen—will always remain such. The only question is as to size and soundness.



## ROTATION OF PRODUCTION. (JUNE).

By J. W. HURST.

### FOWLS.

It is by no means uncommon in poultry writings to find emphatic references to the importance of dryness as a necessary factor in the conditions most suitable for chicken and turkey rearing, and as being conducive to the preservation of health generally. But it is quite possible to have too much of a good thing, and at the time of writing (mid-May) we have already experienced some of the disadvantages of excessive dryness—before we have entirely recovered from the effects of last year's abnormal weather. Egg production has fluctuated considerably, rearing operations have been attended by unusual difficulties, cases of slow feathering and other plumage troubles have increased, and the rations of old and young have required more or less unseasonable modifications, with—in most instances—some addition to the already high cost of production. A spell of warm showery weather would work wonders in improving the condition of the birds and their surroundings, but the influence of dryness inevitably remains to some extent and will doubtless be apparent in the winter laying stock long after the disappointments of early table poultry production have been forgotten. The conditions of last season were of a sufficiently trying character to induce many poultry keepers to part with young birds late in the year—to the further complication of matters this spring—with a view to reducing the food bill during autumn and winter, and it would be a wise proceeding now to dispose of all old stock rather than keep them into or over the moult. Until the hay is carried there is a necessary limitation of space, and where the total acreage is small the requirements of the growing birds are not readily met—particularly in a dry season. The young stock should therefore be rigorously weeded out as well as the old, reducing the selected birds to the smallest number consistent with the needs. It is better to concentrate the efforts upon the proper growth and development of a carefully selected few, and to let them enjoy to the full the benefits of the maximum available space with the more sparsely distributed advantages that characterise the season, than to attempt to retain the complement that the area would justify under more normal conditions.

### DUCKS.

If, as some anticipate, we are to have a very hot summer it will be necessary to place all ducklings where shade is abundant. These birds cannot stand continued full exposure to the rays of the summer sun, and their rearing should never be undertaken after the early months in situations where shelter does not exist or cannot be satisfactorily provided. Aquatic herbage, flags, rushes, etc., should be grown round the margin of the pond

used by the stock birds, and willows and shrubs planted in due season on the banks; the foliage will not only afford natural shelter but will encourage a good deal of insect life. Running water is at all times preferable to that held in ponds or cement-tanks, especially during summer. But where water is artificially supplied, cleanliness must prevail as far as possible, and in times of drought, or when the water is much fouled, Condyl's fluid may be added with advantage. Years ago I had a pond which was very disagreeable in hot dry weather, and found the use of a disinfectant (which I had seen recommended for this purpose in one of Miss Hubbard's books) very satisfactory. Curiously enough the birds persisted in using this pond although there was a stream at the bottom of the same field.

### GEESE.

I have set goose eggs from March to June—the latter being incubated by the geese themselves—but the question of continuing incubation after the hatching of the early broods must be settled individually, according to the needs and prevailing conditions. This year, for example, it is very questionable whether many farmers would be justified in producing any considerable number of goslings. At any rate the conditions up to the present do not encourage the addition of many feathered grazers to the other stock requiring pasture. The early rapid growth of grass induced farmers to turn out stock early—keep being short—but subsequent growth of herbage has been hindered, and pastures are generally getting bare. In most districts grass is short, and where it is a matter of providing food for other stock it is unwise to run many geese.

### TURKEYS.

Dry sunny days have certainly lessened the anxiety of the turkey rearer in one direction, although in another the details of feeding have required some alteration. There has been little risk of a wetting, but when the rearing ground has been selected with a view to more ordinary conditions the soil has been too dry to provide much encouragement for foraging. However, with suitable feeding, the early broods should make a safe start and—unless the subsequent conditions become particularly unfavourable—a good proportion should survive to "shoot the red" and make good progress during the succeeding months.

### PRESENTATION TO PROFESSOR ELFORD.

Before leaving Canada Professor Elford, whose retirement from Macdonald College was reported in our February issue, was entertained at a banquet in Montreal. Mr. H. B. Donovan of Toronto, was in the chair, and Professor A. C. Gilbert, of Ottawa, presented to the guest a handsome gold watch on behalf of his poultry friends in Canada.



## REARING CHICKENS BY ELECTRICITY.

"THE DAILY MIRROR" EXPERIMENTS.

By J. GODWIN-EDWARDS.

ELECTRICITY has made rapid strides during the past few years, but it is still in its infancy. One of the latest uses to which this element has been applied is the rearing of chickens. Some few months ago Mr. I Thorne Baker, the electrical expert to the *Daily Mirror*, knowing what had been done for plant life by the aid of electricity, decided to try what could be done with rearing chickens by the use of high frequency electricity.

It was in December of last year that Mr. Baker had two of Hearson's Foster Mothers in a shed in his garden, in each of which he placed a dozen day-

	Electrified fowls	Non-Electrified fowls.
1.	1lb. 5'43oz.	olb. 13'25oz.
2.	1lb. 5'78oz.	olb. 15'11oz.
3.	1lb. 4'33oz.	1lb. 0'86oz.
4.	olb. 15'04oz.	olb. 11'36oz.
Totals	4lb. 14'58oz.	3lb. 8'58oz.

Averages 1lb. 3'6 oz.

olb. 14'15oz.

Difference 38'5 per cent.



The stand at the Ideal Home Exhibition, at Olympia, where the interesting trials described on this page were conducted. (By courtesy of the "Daily Mirror.")

old chickens. Both lots were treated in precisely the same way except that one lot was supplied at regular intervals and for a specified time with what may be called an electrical air bath lasting three quarters of an hour morning and evening.

At the end of three months it was found that the chickens treated with electricity had feathered quicker; they were plumper, and appeared happier and more contented than the others.

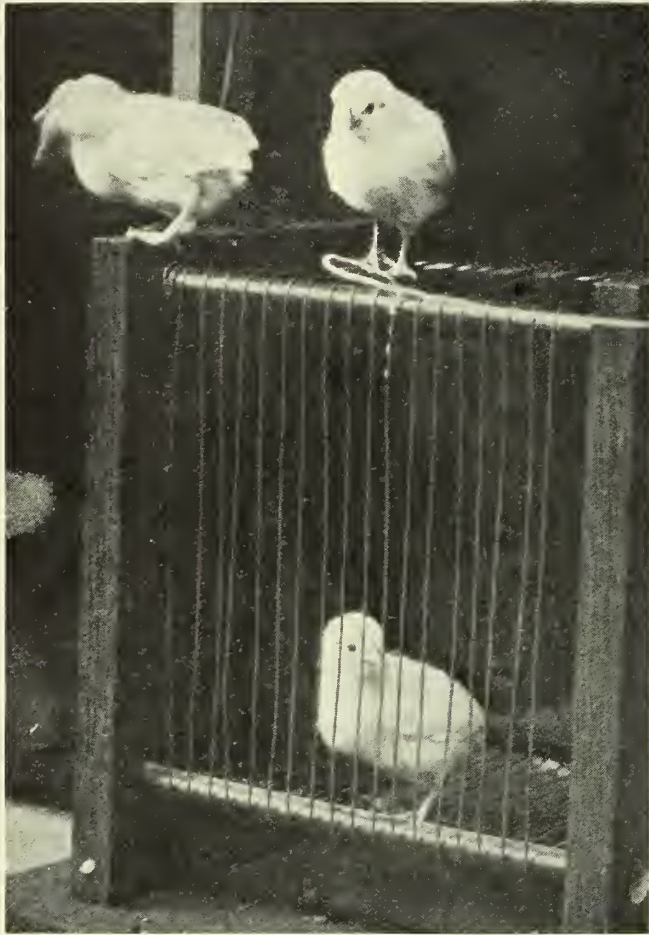
The electrified chickens were 38'50 per cent. heavier than those that had not been heated, as may be seen from the following figures:—

The cost worked out  $\frac{1}{8}$ d. per chicken, so that the treatment is well within the purse of the chicken farmer who rears birds on a commercial basis, and the idea is obviously worth his consideration.

In order to give the public and all interested in poultry-keeping the opportunity of seeing how this high frequency electricity was administered, the *Daily Mirror* arranged for a demonstration to be given at a Stand in the Garden section of the Ideal Home Exhibition held at Olympia, from April 12th to 30th. On two tables were a couple of Foster Mothers in which were placed five dozen chickens. Between the two Foster Mothers were the electric



appliances, which consisted of an eight-volt accumulator connected with a 3-inch induction coil. To one of the terminals of the coil was connected a spark-gap, the balls of which were separated about 3 to 4 millimetres; near the spark-gap were two leyden jars, the wires being attached to an inducances which produces the high frequency current. This apparatus is the result of many months of exhaustive experiments.



**Chickens being treated by high-frequency electrical current, for which it is claimed development is encouraged.**

The chickens consisted of three dozen cross-breds and two dozen white leghorns a week old; these were equally divided between the two foster mothers, fed in the same manner.

The electricity was conveyed to the roof of one of the foster mothers; then into the second chamber where coils of wires were placed about four inches apart, down the sides and along the floor of the brooder. Into this chamber the chickens were shut at intervals for about ten minutes every two hours. The current was turned on, the atmosphere being charged with the high frequency electricity. On placing a glass vacuum tube inside the brooder it was seen to glow a bright red and the air was full of electricity.

#### THE EFFECT OF THE ELECTRICITY.

Both lots of chickens were weighed at the commencement of the Exhibition and again at the close. It was found that those that had been subjected to the electrical treatment were decidedly heavier; these had feathered much better and had got their second feathers. None of them had died, whereas 10 of the non-treated ones had succumbed to the unnatural conditions in which they were being brought up.

Both lots were fed on the same quantity of food, and as there were 30 in the lot treated with electricity and 20 in the other, the increase in weight would have been more if they had been fed with a proportionate quantity of food. This lot was decidedly more sprightly; they were less nervous, more friendly and confiding than the others, and were worth more at the end of the demonstration than the others.

#### THE FOOD.

Both lots of chickens were fed precisely alike, and it consisted of cooked food moistened to a crumbly condition. Small grains were buried in the litter to be scratched for.

This was not by any means a growing test to see what the cost of rearing would be; it was simply as a demonstration to show how the high frequency electricity was supplied to the chickens, and the effect it had on them.

#### THE FUTURE.

Consensus of opinion of experts tends to show that there are great possibilities in the future for the use of electricity in the growth of all life—animal and vegetable. Mr. Thorne Baker has been able to measure the amount of physical work effected by electricity as shown in the increase in the amount of oxygen absorbed and carbonic acid gas eliminated in a unit of time, owing to the product of respiratory combinations before and after the action of high frequency electricity. The flow of blood is greater after the application of the electricity has reduced the work upon the heart, thereby assisting the assimilation of food and increasing the appetite, so that more food is eaten, more readily digested, and growth is hastened.

### REARING GUINEA CHICKENS.

**A**LTHOUGH they may be hatched earlier and later—and perhaps the great majority are late rather than early—by far the most satisfactory birds are those whose rearing is commenced in May. In common with the turkey and the pea-fowl, the guinea-fowl is only partially domesticated, and retains certain wild instincts and habits in a greater measure than have survived in the common domestic fowl. In point of fertility the eggs bear comparison with those of the pheasant—viz., the hatching percentage tends to run high under suitable



conditions, but they are not so successfully entrusted to ordinary hens for incubation and rearing. Indeed, the coop method of rearing never produces such results as are secured by allowing the parents (and the male bird assists the hen in rearing) to bring up their young in a semi-wild state. Nevertheless, such conditions are not generally possible or convenient, and for the ordinary purpose of the farmer the May broods are the best. In the consequent necessary employment of the common domestic hen as a foster-mother there is need for a rather considerable amount of care and attention during the early days of rearing, because the susceptibility of the guinea-fowl chicks to damp conditions is materially increased by coop-rearing, just as in the case of young turkeys that are subjected to the usual conditions of rearing under domestication. It is, however, worth while studying

handling or suddenness of approach or movement is at all times to be avoided; and everything in connection with these interesting youngsters must be done gently and deliberately. But when once the early period of rearing has been successfully passed, there is very little subsequent trouble to be anticipated. It is nearly always necessary to use a floor to the coop in order to keep it dry enough, and it is a very good plan to have a piece of dry sacking handy to place on the boards before shutting the birds in for the night. Although the coop should be placed in a suitable open, but properly sheltered, position, it must always during the early days have a small run or wire-netted enclosure attached; otherwise the young birds will wander or their shyness will lead them to become lost in their search for long grass or other cover. As soon and as frequently as possible the hen should be



#### A COMPARISON.

**The chicken on the right had electricity—the one on the left had none. Both are of similar age and breed, and otherwise were treated the same. (See article on page 399.)**

the nature of these birds, because by making common-sense concessions to their requirements much that tends to their reputed delicateness may be avoided in proportion as hardiness is preserved. The average English poultry-keeper, who has accepted his legacy of the highly domesticated fowl of barn-door description without question, too often applies the old methods indiscriminately without pausing to consider how far other birds may or may not be amenable to similar treatment, with its various limitations, and when he meets with failure is too ready to hastily condemn as delicate those that his own set methods have made so.

The difficulties of coop-rearing are somewhat increased in the case of guinea-fowl chicks by the fact of their extreme shyness, so that any roughness of

allowed out with them, within bounds suited to their age and development; and the earlier this method of hardening is allowed the better the birds will thrive and the more rapid will be their growth. They will require the brooding and other attentions of the hen for six weeks, or longer; but when they have reached about that age, if the warm weather has set in, they will do very well on their own account, and will find much of their living if turned out in the open and allowed comparative freedom.

Reared by their own parents, who do not, however, contemplate this duty very early in the season, the young are very sturdy and able to ramble for considerable distances in search of food—and young and old may in such circumstances be left almost entirely to their own devices; they live



mainly upon suitable foods of a "natural" character, their progress is more rapid, maturity more perfect, a larger number is reared, and health and condition are preserved in a degree well-nigh impossible in ordinary coop-rearing.

The general dietary may very suitably be similar to that used in turkey or chicken-rearing, including for the most part such foods as biscuit-meal, barley-meal, Sussex ground oats, together with a regular and sufficient supply of well and finely chopped vegetable food. It is usual to begin feeding with chopped hard-boiled egg and stale breadcrumbs or fine biscuit-meal, mixed warm with skim milk; adding barley-meal and chopped onion after the first few days, and gradually leaving out the hard-boiled egg. Towards the end of the first week progress will be considerably aided by the allowance of a fair proportion of animal food—ants' eggs, maggots, small worms, or shreds of raw meat; and the early introduction of grain feeding is advisable, using at first such seeds as millet, hemp and canary.

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## FANCIERS & FANCY MATTERS.

By WILLIAM W. BROOMHEAD.

### THE CHICKEN SEASON OPENS.

These are notes on matters appertaining to the Fancy. In other sections of the great poultry industry—we must not forget that, after all, the Fancy is a part of it—there is no fixed date for the hatching of chickens; it is a matter of no moment whatsoever. As long as a fowl looks young and has the appearance of being tender for table purposes it is known as a chicken, while in laying strains I believe that the term is permissible in connection with a pullet which has not commenced to produce eggs. Not so in the fancy, however, since birds to compete in the classes for chickens must not be hatched prior to January 1st. As far as the exhibiting of these birds is concerned the 1912 season opened about the middle of last month, when a certain Lancashire fixture put on a couple of classes for chickens. How many entries were made in them, and by whom—which is an equally important point—it is too early for me to say, since these notes of mine went forward to the printer ere the event came off. But that they filled, and that the winning birds were described as "remarkably forward" specimens, I have not the slightest doubt, since there is no reason to believe that the 1912 season will differ in this respect from its predecessors of recent years. Following closely on the heels of this Lancashire show, however, there were other events last month at which chicken classes were provided; and among them may be mentioned the Bath and West at Bath which opened on May 22, and catered for Brahmas, Cochins, Dorkings, Langshans, Orpingtons, Plymouth Rocks, Sussex, Wyandottes, Faverolles, French, Anconas, Hamburgs, Leghorns, Minorcas, Game, Malay, and any other variety: Ormskirk, Lancs and

Blaenau Festiniog, Merioneth, on May 27, and the Northampton County Show at Kettering on May 29. Now, the question arises, can it be done? Is it possible, by hatching fowls on January 1st, to get them furnished enough to present a good appearance in the show pen at such an early date. It may be said that the exhibits themselves are proof of it. But, are they? Candidly, I greatly doubt it. Admittedly, the subject is a tough one to tackle; but tackled it should be, and that without further delay.

### SOME COMMENTS.

Talk as one may, the early chicken is not to be easily deposed; but it is high time that talk ceased and action began. Writing of the subject in *Poultry* no less an authority than Mr. W. M. Elkington is of opinion that there is substantial reason for the establishment of a close season for exhibition chickens, and the powers that be in the Fancy "might profitably discuss whether in the interests of morality it would not be good policy to forbid the inclusion of chicken classes at shows held prior to the first of July." This may be putting the case in a strong light to those who seek for a solution of the problem. Nevertheless, something of the kind should be done, since, as I have mentioned above, the first chicken classes are provided at shows about the middle of May. And judging by the numerous entries of forward birds secured in these May chicken classes, it is small wonder that the man who begins with the idea of competing with genuine January chickens soon gives up the notion and falls into line with the knowing ones. It must be noted that during the present month there will be classes for 1912 hatched chickens at several important shows, and among them such as the Worcester County at Droitwich, June 4; Wetherby, Yorks, June 5th, the Wilts County at Devizes and the Leicester County at Melton Mowbray on the same day; and the Royal Counties at Guildford, Surrey, on June 11, 12, and 13. The classification for chickens at this last named event, by the way, is a particularly good one as usual; and among the many special prizes offered there are some from the Poultry Club. There being a fairly good choice of shows, therefore, before July is ushered in, it is hardly surprising that each year sees an increase in the ranks of those who enter birds.

### THEN AND NOW.

This craze for the exhibiting of chickens ere the first six months have passed has, however, gone beyond bounds; and if only for the sake of morality, as Mr. Elkington points out, it should be checked. Most of us in the Fancy know something of the origin of these chicken classes. I take it that they were the result of an honest endeavour to "spread the light." For the production of table fowls suitable for the spring and most profitable market, they were designed to act as an example to poultry-keepers in general and farmers in particular.



Poultry producers in the south-eastern counties required no hints in this direction; but, in the young days of the agricultural and poultry show, knowledge travelled slowly, and it was by the provision of such classes at exhibitions held in different parts of the country that it was hoped to encourage the production of early chickens. No one can question that it did good and that no better way could have been found of bringing it before the notice of those likely to be the most interested in poultry. However, those times are over; the experiment stage has been passed long since, and to-day the birds in the chicken classes compete purely and simply for fancy points. That being so there is no need, in my opinion, to continue catering for the early birds. If I had my way I would abolish the chicken classes entirely, even at exhibitions held in the twelfth month of the year. It would mean birds of any age competing; and I cannot help thinking that it would give infinitely better results, since to gain a prize the bird would have to be well furnished. Think it over, those of you who are interested in the subject, and remember that the columns of the "*Illustrated Poultry Record*" are always open for discussions on such important subjects as this.

#### WYANDOTTE TYPE.

During the past few months much has been said on the question of type in the Wyandottes shown in this country; and from an American exchange that I have just been reading I see that the subject is being taken in hand in "the land of the stars and stripes." One of the most widely recognised authorities on exhibition poultry in the United States of America, to wit, Mr. J. H. Drevenstedt, is appealing to fanciers to recognise type before colour and lacing in the Silver Wyandotte. Like many more Americans—and, I may be permitted to add, a few English fanciers and judges—he regards type as the chief characteristic in the Wyandotte; and I gather that he advocates a return to the original marking—heavy lacing and a narrow white centre—because there is a better chance of getting the correct American shape with it. Last year Mr. Drevenstedt was good enough to forward to me a copy of the latest edition of "*The Wyandottes*," the standard book on the breed, and issued jointly by the Reliable Poultry Journal Publishing Company of Quincy, Ill., and the American Poultry Publishing Company of Buffalo, New York. This work, which he edited, is contributed to by the best known and most expert breeders and judges in America, and the text and illustrations are based on the requirements of the 1910 edition of the American Standard of Perfection. It will be seen, therefore, that "*The Wyandottes*," can be taken as the authority on this great American breed, and those fanciers over here who are anxious to "get right" in Wyandottes cannot do better than get a copy of the work and study it closely. The illustrations in the main are by Mr. Franklane L. Sewell, who, as a delineator

of standard-bred poultry has no equal; and if English fanciers will take the ideal charts as their ideals they will be doing the correct thing. There is no "black with white centres" about the Silver Wyandotte as there described and illustrated, and if we could breed such exquisite birds as those depicted in the frontispiece we would have the "top notcher" without doubt.

#### ROSE-COMBED CAMPINES.

The "rose-combing" of single-combed breeds continues. The latest recruit is the Campine, and Dr. Dunkin, of Clapham—well known to "South Met" fanciers—has succeeded in breeding some. They are not crosses, he assures me, being bred from genuine sports? and no breed but the Campine has been used. Some of us are wondering in how many respects the hens will differ from Hamburgs, and the cocks from the pullet breeding males. However, we must wait—and watch.

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### An Anglo-American Poultry Book.\*

Dr. Brigham had charge of the first Practical Poultry Course in America, that at the Rhode Island Agricultural College in 1898, and his work, of which this an English edition, was published in 1908. It contains a large amount of valuable information, but like most of those published across the Atlantic is weak on the table poultry side. In committing the revision to Mr. Sharpe it was to be expected that such would be remedied, as that well known expert lives in the Sussex atmosphere, and breathes the spirit which has made that county famous. Such was a wise policy, and we commend the judgment of those responsible for it. Whilst, therefore, a large portion of Dr. Brigham's text and the general structure are preserved, those sections dealing with cramming and marketing are new, and go far to make the work more complete and useful to British readers. Changes have also been made in other ways, necessitated by our special conditions, but in general the principle is evident of non-interference has been adopted, thus allowing the author to tell his own story. As is usual with American books of this class the admixture of exhibition and utility breeding is much more evident than in English publications, and it is here where the reader is likely to be somewhat puzzled. If he eliminates the few pages in which fancy aspects are mentioned he will find much of the greatest service. And we find, on page fifteen, that a more peculiarly American aspect is retained, under the head of "The Financier's Flock," upon which some straight facts are stated. The illustrations are good, and English throughout, adding much to the appearance. It is published at a popular price, and should find a considerable clientele.

\**Progressive Poultry Culture*, by A. A. Brigham and S. C. Sharpe, London: Methuen & Co., Ltd., 227 pp., illustrated, 3s. 6d. nett.



## JUNE NOTES FOR AMATEURS.

WITH the show season commencing, there is plenty of work for fanciers just now, though few amateurs manage to get good specimens in first-class condition at this time of the year, for the reason that the chickens are not sufficiently well developed and the old birds, if they have been in the breeding-pen, are rough and weathered. There are many who believe that the amateur has no chance at the summer shows, and certainly he is greatly handicapped when competing with the big men who have an extensive stock and can keep a few good specimens in reserve specially for summer showing. To be successful an amateur must adopt the professional plan and keep his summer show

In June, however, that cannot be done by heavy feeding, and the chief difficulty is to avoid getting the hens too fat. Most people give their fowls more food than they require in summer, forgetting that the necessity for promoting bodily heat no longer exists as in winter. A winter layer needs to be in good plump condition, but a hen will lay in summer even if comparatively poor, and this state is better for her. Let the birds have plenty of exercise, by all means, and in a small run I prefer to give all hard corn, though providing some variety by ringing the changes between wheat, oats, and dari. In addition it is a good plan to give vegetables, both green and cooked, but no stimulant, such as meat, is necessary, unless the weather is chilly and the birds out of condition.



**Poultry Students at the Uckfield Agricultural College. Mr. Sharpe, author of the book reviewed on page 403, is standing in the front, wearing a straw hat.**

birds in sheltered quarters. It is not much use depending upon the breeding-stock at the end of their season.

In regard to summer egg-production, the amateur, with his confined run, is at a disadvantage compared with the farmer, whose fowls, having a free range, find a lot of natural food and are kept at a low cost. Nevertheless, it pays even the amateur to produce summer eggs rather than let the hen be idle. Moreover, a busy layer will moult sooner than an idler, which is a great advantage for those who run hens on for two seasons, whilst for those who clear off their laying stock at the end of each season it is absolutely essential to get as much out of them as possible.

Eggs are cheap, and it pays better to put them into water-glass than to sell them at eighteen or twenty a shilling. Water-glass has become quite a national institution, and thousands of housewives buy a consignment of shop eggs, put them into the preservative, and take them out six months hence—sometimes approachable and at other times not. Why is it? Simply because shop eggs are not dependable, and the first rule in preserving eggs should be to have them quite fresh. A friend of mine ordered three hundred eggs from a farmer last summer, and as the purpose for which they were required was not explained, it may be assumed that the farmer must have made up the number with a few eggs that had become family heirlooms.



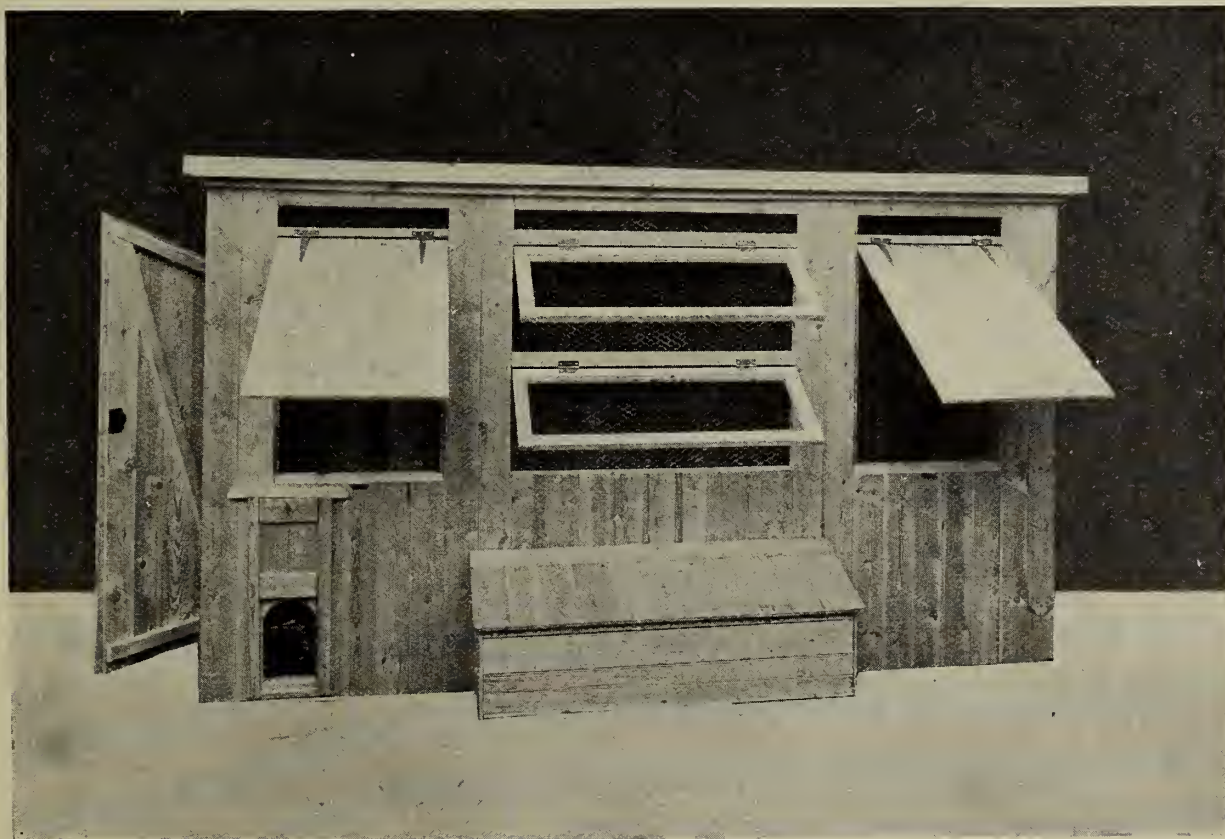
At any rate, the jars were never opened, but in the following November a man was paid to take them away and bury them.

The moral is, never buy eggs for preserving unless you can make sure of getting them quite fresh. Moreover, do not keep your own eggs until you get a nice lot, but put them into the preservative every day or every other day, and take them from the nests early, so that hens do not sit upon them all day. When these precautions are taken the water-glass method will be found simple and cheap. With nine pints of boiling water to one pound of silicate the solution will be about the right consistency, and when well stirred and cooled it will be ready for the eggs. Metal or earthenware vessels are best, and if the eggs are put in day by day they should be well covered with the solution. Finally, when the vessel is full, make it airtight and store it away in a cellar.

Those who hatch chickens this month must give them fresh ground to run upon. Unsatisfactory results will be experienced if they are reared on the same spot as the earlier broods. Keep them in the shade, and be sure to replenish the water-pot frequently. And that reminds me that the water supply for all sorts and conditions of stock is a very important matter in summer. Fountains are preferable (an inverted bottle, with the lip just below the level of a dish, will answer the purpose), but they must be swilled out with hot water once a week, and they should be placed in the shadiest part of the run, and where they are not likely to get filled with litter when the hens scratch.

## GROWING TURKEYS AND THEIR CARE.

IN this, the last important hatching month of this production, turkey chicks of various ages—but all quite young—demand more particular attention than will be required at that desirable period when they are usually supposed to be hardened—having exhibited those red appearances about the head and neck that are regarded as significant of emancipation from the dangers of a youthful delicateness. The degree of that early delicacy is subject to some natural variation, and is consequent upon such anterior and present influencing factors as ancestry and management; but that, however unnecessarily, it is almost invariably present (in some measure) cannot be gainsaid. It is one of the penalties exacted by nature for much mismanagement of these birds under domestication, but the elimination of this hindrance to profitable production is largely in the hands of the breeders and rearers. Much may be, and in many cases has been, done to raise the level of constitutional fitness; and the early delicacy diminishes in proportion to the increase of stamina in the stock and the common sense of the treatment of old and young. Such as they are, the young are the immediate consideration. Some are only now just hatched, whilst others are at that parting of the ways signalled by the “shooting the red,” and the quiet early broods are already rubicund—having “crossed the Rubicon.”



**AN OPEN-AIR POULTRY HOUSE.**

The type of house favoured by Mr. Sharpe, who is a great believer in plenty of open air.



The latter need not detain us long, either in writing about them or in attending to them. They are now practically on an equality with running chickens, and to that extent the rearer is relieved of much previous anxiety—which is not to say that they will now thrive under a policy of neglect. But from this period onwards the rubicund youngsters may be allowed the freedom of a wider range, housed in a larger shed, and fed in much the same manner and with the same foods as the forward chickens. Perhaps the most important consideration is the character and extent of the range, the growth, and development of the growing birds being to a considerable extent dependent upon and proportionate to the suitability of the ground to which they are allowed access. The abundance and variety of the “animal” food and the quality of the new herbage are not the least important of the many advantages of freedom; and of scarcely less consequence is the influence of the exercise of foraging upon digestion, and a resultant progress and maintenance of healthy condition. As at all periods, so especially now is it necessary to remember the requirements of the gizzard, and to provide grit in plentiful supply and of a suitable size. I have seen it stated that when the birds are big enough to enjoy the freedom of farm lands they will find all they need as regards grit—as well as vegetable and insect food—but this by no means follows as a necessary consequence of freedom. There is a difference between sharp, hard grit and mere stones, and the former is by no means always available without special provision—any more that the growing herbage is essentially suitable or the insect life sufficient for the growing requirements.

Turkey chicks that are under the age of two months are still within the period of more particular requirements that necessitate rather exceptional treatment. In the first place, the average conditions of breeding and rearing under domestication have made it compulsory to keep the young birds dry under foot and overhead, although in more natural circumstances the hen turkey is quite competent to assume full responsibility and rear her young in the open without the precautions we find so necessary. Short or close-cropped grass is therefore desirable, and some means of temporary confinement without too close an approximation to indoor conditions should be contrived in case a spell of wet weather prevents outside freedom. The neighbourhood of other fowls is to be avoided, and on no account should the rearing-ground have been previously occupied by ordinary chickens during the same season.

At the commencement the feeding must be early and late, and it should be remembered that their digestive arrangements are such that they require but little food at each meal, but that they need that little often. The character of food must be of the moist but crumbly description, and the ingredients selected and prepared with considerable care. I know of one successful Cambridgeshire

rearer who commences with the old diet of hard-boiled eggs, with the subsequent addition of well-scalded biscuit-meal and steamed rice; others there are who believe in starting their birds with a course of curds and fine oatmeal; and I have myself used nothing but Sussex ground oats, sharps, and the inevitable chopped dandelion with equal success. In the use of any ingredient that requires scalding or steaming, the process must be thoroughly performed, but the finished mixture must never be really wet—only moist. Although any approach to the so-called “dry feed” system is unsatisfactory, it is desirable (in addition to the use of soft food as the staple diet) to introduce a very small allowance of small or cracked corn as early as possible, and thus gradually lead up to the subsequent freer use of grain in feeding. Any use, and the quantity, of meat substitutes for natural food must be dominated by the supply of insects, grubs, and worms available on the range; but some additional allowance is commonly desirable at the more critical stage of “shooting the red.”

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### DESIGNATIONS OF EGGS.

In the State of Montana, U.S.A., an attempt is being made to prevent misleading descriptions of eggs, and the following regulations have been adopted:

“Eggs shall be known as fresh, ranch eggs, and case eggs.

“Any eggs sold or offered for sale as fresh eggs, that are more than seven days old, shall be deemed misbranded.

“Under the title of ranch eggs are eggs that have not been preserved or the age of which is not known.

“All eggs that have been kept in cold storage or have been preserved in any way shall be known as case eggs, and the containers of such eggs must have plainly marked thereon in letters not less than two inches high the month and the year in which such eggs were placed in cold storage. Any eggs which have been preserved in any way which are sold or offered for sale without such label being marked plainly on the container shall be deemed misbranded.”

Heavy penalties are prescribed for violation.

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### EGG PRICES IN THE TRANSVAAL.

The *Illustrated Star* of Johannesburg states that in March the price of eggs was 4s. 6d. per doz., and that the supply is not nearly equal to that figure. Such may make the mouths of our poultry keepers water, but is not so much above winter prices on this side when the exchange values of money are taken into account.



## "CHEAP AND NASTY."

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—Mr. Pettipher's article in your May issue and your Diary note show up the evils of the craze for low prices, and I entirely agree with them. The trouble, however, is that no remedy is proposed and probably such is impossible. As a buyer, not a breeder, I have often suffered by having imposed on me culls that ought to have found their way to the pot, though it is only fair to state that as often as not the low priced specimens have proved just as good as those for which three or four times as much was paid. Under those circumstances there is no reason why I should give out money unless value is received. An exhibitor has a standard which determines value, whereas the ordinary poultry keeper has none. If we seek for appearances then we must pay in accord with these, but when I buy pullets as layers, unless the seller has a justification for asking high rates, one that can be proved, it is small wonder if those like myself prefer to take our chances with the cheaper class of fowl. The risks are fewer and the results often just as good. That may be admitted without questioning the evils referred to. What we buyers want is that you should show how to obtain relative value for money paid.

Two instances will suffice to prove how difficult is the case. Some time ago I bought a dozen day old chicks for which 12/6 was paid. Out of them I reared nine, every one of which turned out well. At the same time I paid 21/- for another lot of the same breed from another quarter. All save four died during the rearing stage, and only two of these were worth keeping. Tell me, I pray you, what is there to justify me again going in for what should be the better? If there is an answer, let us have it.

ERNEST SCOTT.

SIR,—I am, as you know, a breeder of repute, a regular advertiser, making the main part of my income from poultry. What I want to do is to obtain the highest price possible for my birds. Their value is what they will realize. That depends on who the buyers are. The plan I adopt is to be guided by my customer, adopting the plan of charging, as do doctors, in accordance with the customer's pocket, as far as I know it. There is and can be no fixed price for fowls, as you cannot measure or weigh them out like bread. It is entirely a question of supply and demand. Some years I have been able to sell at twice the price of other times, not that there was any difference in the quality of the birds, but because I had got hold of people who could afford or were willing to pay more.

What is the use of a name or having gained a reputation unless it enables me to charge higher prices? Most breeders have had at the outset to accept what we could get until a demand was created, and I take it that the advertisers who offer at

3/- and 4/- each are either beginners or the vendors of other people's culls. The latter are a curse. The former cannot be blamed. Mr. Pettipher is quite right where he says :— "Would that many more breeders of pure bred fowls became more thoroughly utilitarian and sent to market a greater percentage of their season's breeding." That is the way to get out of this difficulty, in my experience. Every year I make three "weeds-out" of my birds; first, when the chicks are 10 and 12 weeks old; second, as soon as those remaining have put on adult plumage; and third, in September. The result is that the stock for sale is usually one-third of the total hatches. Every specimen offered for sale as breeding or laying stock has been selected in this way, and for these I demand and get good rates, whilst during the last two or three years while my sales have largely increased there were never as many as I could have sold. Nothing enhances demand so much as inability to get what people want. The prices thus secured are excellent, and as a proof that this system is the right one, my customers appear to be highly satisfied. Some of them would be unhappy if I asked ten shillings for what they are ready to pay a guinea.

If the better class breeders would adopt this system it would pay them better than selling a larger number at a low prices. Of course, there are many who cannot afford any expensive birds, but these I do not seek for, and am content that others shall serve them. At the same time it must be recognised that the day of excessively high prices, except for a few exhibition birds, has gone, and we have to be reasonable in our charges, giving something like fair value for money.

A BUFF BREEDER.

## Death of Mr. M. M. Johnstone.

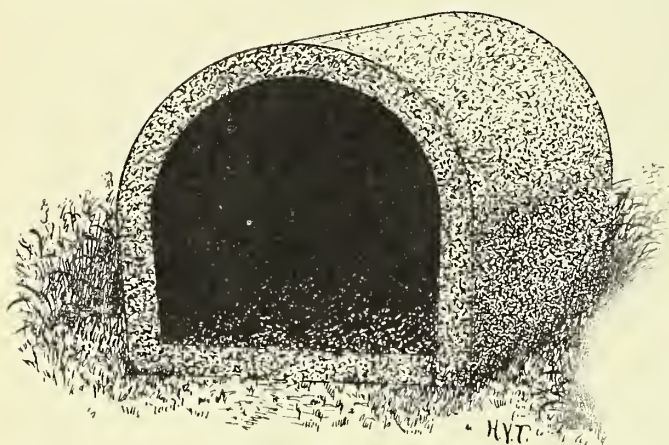
Our American exchanges report the death of Mr. M. M. Johnstone, of Clay Center, Nebraska, manufacturer of the "Old Trusty" incubator, which is so largely advertised in the States, but which, so far as we are aware, has never been seen in Europe. This is strange, as he was reputed to be the largest manufacturer of hatching and rearing machines in the world, having sold last season upward of 70,000. He commenced in a small way by acting as his own salesman, travelling in a horse wagon from farm to farm. From that his enormous business has been built up, so that his machines must have been good. Three years ago he caught a chill, which settled on his lungs, but he acknowledged himself to be a victim of over-work. In a pathetic letter to Mr. Grant M. Curtis, published in the *Reliable Poultry Journal*, he said :—"It is all right to make money, but it doesn't look right to finish up by getting rich and then be carted off to the world beyond without any fun between the acts."



## CEMENT NESTS FOR HENS.

By H. V. TORMOHLN.

THE steady rise in the price of timber and the ever-increasing scarcity of good lumber has made the impetus of the cement age all the more pronounced. The encouraging feature about the gloomy timber situation is that cement, as a rule, has been found superior in many respects to timber. Nearly everything about the country residence which was formerly built of wood is or can now be constructed from cement. Barns, troughs, tanks, mangers, floors, and bins, and what-



**A Cement Nest.**

Now being extensively used in the United States.

not built of cement are much more satisfactory than those built of timber. The up-to-date poultry raiser has not been far behind in acknowledging the superiority of cement for poultry houses. With cement floors, properly constructed, they are warmer in winter and cooler in summer. They are much more sanitary and easier to clean, while they are rat and vermin proof. The time is not far distant when we will possibly have cement dropping boards and nests built in with the cement walls of our hen houses, but thus far this has not been found practical on account of the bulkiness of the cement and the vast amount of tedious work and small moulds it would take for a house of any considerable dimensions.

The hens should be discouraged in laying in the hen house during the hot summer months, provided that plenty of cool nests are provided out of doors. The laying and setting hen will find more comfort in these nests, and the lice and mites are much easier to combat.

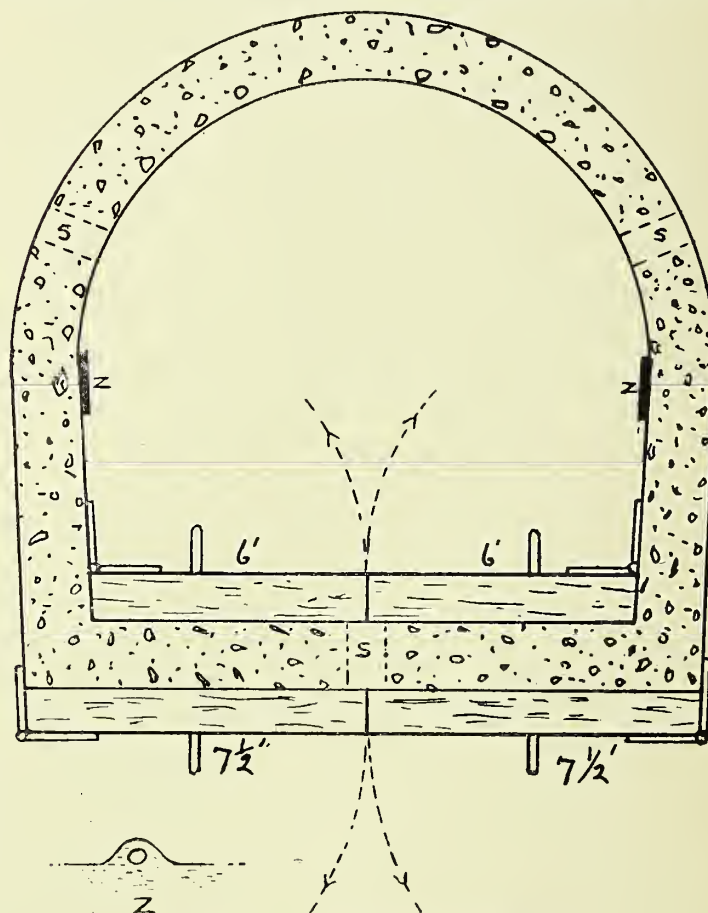
The advantage of the cement nests for out-door use is that they are practically indestructable, they are cool, they do not harbor rats, and they do not easily become infested with lice,—if they do they can be burnt out in a few moments' time and you are sure every nit and louse has been destroyed.

The accompanying sketch and drawing show a method of making a hen's cement nest. The inner and outer forms consist of galvanized sheet iron,

hinged to 1 inch boards for the bottom, which are hooked together as shown when the mould is closed ready to be filled.

For the outer form a piece of sheet iron 41 inches long and  $15\frac{1}{2}$  inches wide is required, and for the inner form a piece 20 inches long and 14 inches wide. Two loops are cut in the galvanized iron, or riveted on to one end of the mould, marked z in the drawing. These are placed directly opposite to each other as shown, so that a stick or rod can be passed through them. When in position this stick rests upon the outer form and holds the inner form up  $1\frac{1}{2}$  inches from the back, as the nests forms are placed on end while being filled with cement. The wooden base for the inner form consists of two 1 inch boards, 6 inches wide and 14 inches long, and for the outer forms of two 1 inch boards  $7\frac{1}{2}$  inches wide and  $15\frac{1}{2}$  inches long. These wooden bases are prevented from bending at the joint by placing a small strip or rod in under the brackets.

The concrete should be composed of 1 part cement to not more than 4 parts of sand or bank run gravel, with no particles coarser than  $\frac{1}{2}$  inch.



**Sectional view of the Cement Nest.**

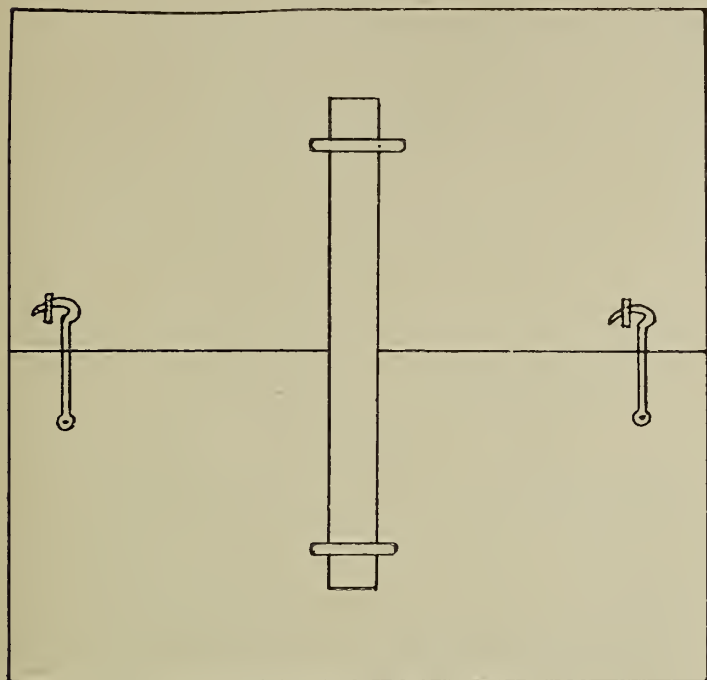
The mixture should be of such consistency as will require a slight amount of tamping to force it to all parts of the mould.

The outer form is first placed in position (on end) on a wooden pallet or floor and  $1\frac{1}{2}$  inches of concrete then deposited. The inner form, with rods



through parts 2, is then set in position and 3 pieces of wood  $1\frac{1}{2}$  inch wide (s in diagram) and 14 inches long are placed between the inner and outer forms to act as spacers.

The concrete is then deposited and when the moulds are half full the spacers are removed. The



The bottom boards of the Cement Nest.

mould is then filled up and removed to a cool, moist place to set for at least 7 days. At the end of 24 hours the moulds can be removed, care being taken not to knock off any corners. With a few moments spare time each day with even one mould, enough nests can soon be made to have enough nests out doors to accommodate all the hens during the warm months. The nests can be placed under bushes and out of the way places and the hens will enjoy them much more than being crowded in the hen house. The hens will not be so apt to hide their nests, when given these nests which are put in secluded and shady places.

### Killing Fertility.

A German contemporary states that soaking eggs for twelve hours in cold fresh water will make them unfertile. If correct, and the truth can easily be tested, it is simplicity itself.

### The Largest Poultry Paper.

We congratulate the *Reliable Poultry Journal* on its April issue, consisting of 252 pages and cover, full of good matter—and advertisements.

## THE EXPERIENCES OF A TOWN POULTRY-KEEPER.

CONFESSION, we are told, is good for the soul.

Let me say at once that my confession is made in the hope that it may be of service to others, that they may profit by my mistakes. For there is no greater truism than that we learn by our failures, and assuredly that applies to the amateur poultry-keeper more than to anyone else. In the first blush of the hobby we scorn good advice. As to young people, it seems that all that is necessary to start a home is a man and wife, so to the amateur poultry-keeper does it seem that all that is required to procure eggs is a few fowls. It is self-evident that this is a very rash view. Nevertheless I have found fowls kept in all manner of unsuitable places, from a rabbit-hutch in a bedroom to a corner of a cellar. When one finds fowls kept in a cellar one cannot help slyly wondering whether the owner is trying to procure a set of new coloured eggs; but that by the way. I won't insult the intelligence of my readers by enlarging on the unsuitability of both places.

But it is undeniable that the difficulties which confront the would-be poultry-keeper in a large town are no light ones, and it is for that reason that I think a brief account of my trials will be acceptable. It is so often urged that poultry cannot be made to pay unless they are kept in the country. I cannot agree with the contention. Observe common-sense rules, profit by experience of others, and fowls in a town garden more than pay their way, besides providing a delightful hobby.

To come to my own experience. Like most others, I took up poultry-keeping to save money and to derive pleasure. Eggs had always seemed dear in town, and the supply obtainable very seldom ministered to the weakness I freely admit I have for the rich dark variety. But if I wanted rich dark eggs, what easier than to get a farmer, at a little extra cost, to allow me to have the pick of his basket, place them under a hen, and hatch out chicks which would eventually supply me with the class of eggs I desired; The idea was too good to miss. To cut the story short, I hatched five out of twelve eggs. Two of the chicks turned out to be cockerels, and there was not a pure-breed in the quintette. I was not discouraged, however, and when at length a brown egg came there was a great rejoicing in the camp.

Following the advice of a friend, I had just before bought a couple of Buff Orpingtons and two Buff Plymouth Rocks. They cost me 10s. a pair, and let me at once say that it was a very wise speculation. They gave splendid returns, and helped considerably to pay back the expense I had been put to; whilst my mongrels, although laying splendid eggs, could not be considered as wholly satisfactory from a profit-making point of view.

I have never been able to give my fowls very much exercise. Grass fields have been an unknown



luxury, but I have, as often as possible, given them some loose grass. They have had a covered run, plenty of scratching exercise, a breakfast of pollard mixed, as often as possible, with water in which the household meat had been boiled; a midday meal of mixed corn given at the rate of a handful to each fowl, a good supply of clean water, and a box of grit nailed up to the side of the run. I have not used trap-nests. For nests I get an orange box of three compartments (price 3d.). This provides three nests. A little clean straw and a pot egg is all the encouragement I give, and all, so far as my experience goes to show, that is necessary.

The nett result of my observations during a year was this: The town poultry-keeper should aim above everything else at getting winter eggs. Here he has an advantage over his country competitor from the fact that the town yard is more sheltered, and the scraps from the house (which are very effective as egg-producers at this season) can be doled out with a more lavish hand to each hen, as they are fewer in number. It is in winter, when eggs are six for a shilling, that one realises the profit of wise poultry-keeping; it is in summer that one derives the pleasure. Combine the two, take the one with the other, and keep an eye to profit, and you will find it difficult to meet with a more lucrative or satisfactory hobby.

### From American Contemporaries.

Scene a country inn—Tourist: "Confound it, woman! There's a chick in this egg!"

Landlady: "Well, sir, you *are* a lucky one! In a few weeks I could have had half a crown for that fowl, and 'ere you get it for twopence!" (And still he was not satisfied).

A Sidney man's excuse for stealing a pair of chickens was that while at work he hung his coat near the coop, and on going for it he found the chickens were roosting on it. He hadn't the heart to wake them up, he said, so he wound his coat around them without waking them and carried them off. His defence was ingenious, but he was sent up for three months all the same.

A clerk in the office of Mr. ———, president of the Indianapolis railroad, at Cincinnati, obtained leave of absence to go on a hunting excursion in northern Indiana, but returned without so much as a sparrow. On getting back he wrote a note to Mr. ————thanking him for his courtesy, and begging his acceptance of a package of game as the result of his efforts. He then gave a porter five dollars to buy a couple of dozen of quail or prairie chickens, and take them with the note to Mr. ————. The porter could not find either quail or chickens, and so bought a dressed turkey and two cans of oysters, which he delivered to Mr. ————. The latter's astonishment may be imagined.

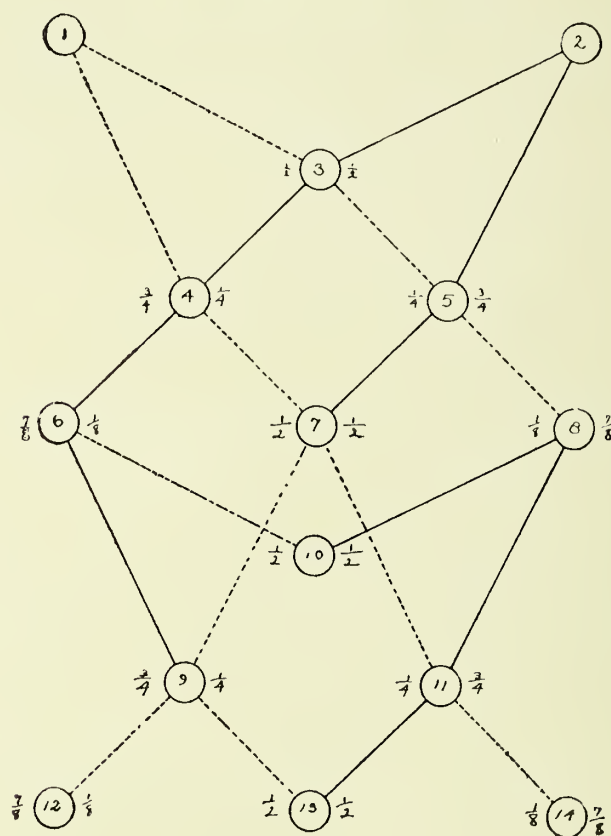
## LINE BREEDING ACCORDING TO MR. FELCH.

By W. W. Cox,

Managing Editor of the *Poultry Review*, U.S.A.

Mr. I. K. Felch, of Natick, Mass., who for many years has been an acknowledged authority on line breeding, and whose chart has been so often published, has recently written letters to *Poultry Success* and *American Poultry Journal*, giving each of them a modified form of his original chart, with explanations. These simplify the earlier chart and

*A Modified Felch Chart*



make its use easier. These two new charts, and the explanations accompanying them differ somewhat, and we have prepared one that covers all that is in both, and have added some figures which will serve to make them more complete, and shall take both articles by Mr. Felch and by a process of elimination and combination, try to give the substance of what he has to say about the matter.

We have also prepared a symbolized chart which will show at a glance just how much of the blood of each of the original pair is present in each new group as produced by the line breeding process.

Mr. Felch says that it makes no difference whether two breeds are crossed, or two specimens of a breed of widely different parentage, the progeny will be more prolific than the original fowls. These results



can be obtained in one's own yard, if one starts right and keeps his head, his arithmetic and his records clear.

Health, size and shape at the start must be secured, and must also be constantly maintained. With these laws to govern us, we may take with us to isolated ranges a single pair of unrelated fowls, and from them in three years have our flock number thousands of the same type, sizes, colour and productive merit, and by following the methods shown in the chart the process of line breeding can be continued indefinitely, with no deterioration from the quality of the original pair.

The first season female No. 1 mated to male No. 2 gives you group 3, which contains one-half the blood of each of your Adam and Eve in poultry.

### A Symbolized Felch Chart

FEMALE	MALE
①	②
① ♂ ② = ③	$\frac{1}{2}$ $\frac{1}{2}$
① ♂ ③ = ④	$\frac{3}{4}$ $\frac{1}{4}$
② ♂ ③ = ⑤	$\frac{1}{4}$ $\frac{3}{4}$
① ♂ ④ = ⑥	$\frac{7}{8}$ $\frac{1}{8}$
② ♂ ⑤ = ⑧	$\frac{1}{8}$ $\frac{7}{8}$
④ ♂ ⑤ = ⑦	$\frac{1}{2}$ $\frac{1}{2}$
⑥ ♂ ⑧ = ⑩	$\frac{1}{2}$ $\frac{1}{2}$
⑥ ♂ ⑦ = ⑨	$\frac{3}{4}$ $\frac{1}{4}$
⑦ ♂ ⑧ = ⑪	$\frac{1}{4}$ $\frac{3}{4}$
⑧ ♂ ⑨ = ⑫	$\frac{7}{8}$ $\frac{1}{8}$
⑩ ♂ ⑪ = ⑭	$\frac{1}{8}$ $\frac{7}{8}$
⑨ ♂ ⑫ = ⑬	$\frac{1}{2}$ $\frac{1}{2}$

That is the prolific first step towards full fruition in breeding. Then as you breed pullets from No. 3 back to their sire, No. 2, you create three-fourths the blood of Adam, group No. 5. Breeding a cockerel of No. 3 back to his dam, No. 1, the Eve of your flock, you create group No. 4, having three-fourths the blood of Eve.

Now, by the mating of specimens of groups 4 and 5, you create group No. 7, which have half the blood

of No. 1 and half of No. 2. The fowls of this group No. 7, are the grandchildren of Adam and Eve, and will be just as prolific as those of group 3.

Again, a male from No. 4 mated to Eve, No. 1, produces group No. 6, with seven-eighths of the blood of Eve. Pullets from No. 5 mated to Adam, No. 2, produce group No. 8, which have seven-eighths the blood of Adam.

Following the laws of English breeding, these seven-eighths bloods can be reckoned as full-bloods, and used as were the original pair, so that the mating of groups 6 and 8 produces group No. 10, another half-blood group. Thus groups 3, 7 and 10, and also group 13, are of the same blood, having been reduced to a new strain, which in procreative vigour and egg production maintain the health, type, strength and size of the Adam and Eve of the flocks.

Of course, with every new mating, care must be exercised to use only such birds as are strong, healthy and vigorous, and that are ideal in type; then egg production and all utility purposes will take care of themselves, as long as you can create groups representing half the blood of each of the original Adam and Eve as reservoirs from which to draw new blood for your matings.

The grand secret of this method of line breeding is that in each generation we create a half-blood group, as seen in 3, 7, 10 and 13.

In the diagram as here given, solid black lines show that a male has been used from the group above, and dotted lines show that a female has been used, to create the new group.

As has already been shown, in groups 6 and 12 we virtually have the full blood of the original female, No. 1, and in 8 and 14 the full blood of the original male No. 2. So that when we reach No. 6 and 8, the original process is repeated, only that groups are mated instead of single fowls.

We are now ready for the trade and for future line breeding for all time to come, and we have secured these results from a single pair.

If the directions in the use of this chart are carefully followed, there can be no mistake made, but you must always be sure that each mating changes the percentage of the blood of the original pair, as carelessness would work havoc. The moment there is no change in the blood they prey upon their own vitality, and deterioration commences.

We would like to say, in closing this article, that if line breeding is to be used at all, there can be no better plan than the one outlined by Mr. Felch; but as he himself warns against carelessness, thus pointing out the danger connected with any attempt at line breeding, we would like to suggest to the beginner that it will be well to wait a little before trying his hand at it. For the average amateur it is better to get a new male now and then from some strain entirely unrelated, and get one that conforms quite closely to his own.



## SCIENTIFIC CHICKEN FEEDING.

### Some Personal Experiences.

By C. BRUCE TABERNER.

I may say at the commencement of these notes that a large proportion of the mortality among chicks could be avoided if the chicken rearer would only give a little more attention to the dietary of his birds. The importance of feeding young stock has not been realised by many fanciers, with the result a large proportion of healthy chicks die every season through absolute ignorance on the part of the owner. The most important point in chicken management, and the one item which practically is the key to success, is to feed the birds often, supplying them with a little at a time. Other aids to success are that suitable foods must be given, plenty of exercise and fresh air allowed, while the roosting house must not be overcrowded. For the benefit of the novice I may say that when a chick is newly hatched it does not require any food for at least twenty-four hours after, as Nature has provided for the sustenance of the little body in the form of the yolk which the chick absorbs previous to leaving the shell. Here again, many make a great mistake by giving a newly-hatched chicken food, which in many cases they will eat, only to be affected afterwards with diarrhoea and indigestion.

I am not going to argue the point as to whether soft or dry food is better, as many believe that soft food is the sole cause of diarrhoea, while others will tell you that when dry food is fed to chicks they never attain the size and quality which is so much desired in every breed. There is certainly something to be said for both sides of this important question, but I believe in feeding one's chickens in the manner which has been proved by experience to suit the youngsters' constitution. One must be guided by experience and if a certain dietary has been proved to suit the chickens then it should always be used.

My experience is that for the first few days very little food need be given, and what is given should only consist of small grains such as canary seed, groats, hempseed, millet, cracked wheat, and peas. At the commencement feed every two hours on the above mixed grain, and occasionally a little soft food mixed to a crumbly state. Stale bread crumbs or biscuit meal well soaked and mixed with egg (hard boiled) is a good mixture, but do not give this too often, as it is believed to cause diarrhoea if given in excess. When the chicks are about a fortnight old they may be given soft food in larger quantities, as too much dry food keeps them small, which is not desirable except in Bantams. Well scalded chicken biscuit meal, mixed with ground oats to a crumbly state, is excellent, and boiled rice and sharps mixed together form a very nutritious ration.

When they are a month old another change may be made in the dietary. Butchers' offal may now be given if well boiled and cut up finely, and as a mid-day feed it is much relished.

As the chicks grow older the number of meals per day may be reduced, but they must in consequence be more substantial. The animal food must not be forgotten, as it is very essential to the building up of a sound constitution. Green food also is an item which should receive attention, as "greens" possess many valuable laxative and tonic properties which are very healthgiving to the youngsters. If they have no access to grass a cut sod put down in the run will be relished, and lettuce, clover, or any field herbs, such as dandelion, are very good and can be given along with the mid-day meal. I believe that all food should be given in troughs and, especially soft food, as it is a much more cleanly method. In fact cleanliness counts a great deal in the successful rearing of chickens. Nearly, or practically all, authorities are agreed that chickens need a ration that is rich in albuminoids, and for this purpose fresh cut green bone or bone meal and animal food must not be forgotten. Many fanciers consider that bran is not a suitable food for growing stock, but when it is mixed with Sussex ground oats of genuine quality no better food can be procured, being cheap and very substantial, as well as nutritious.

### INTERNATIONAL STANDARDS.

#### A COMMITTEE OF ENQUIRY.

*To the Editor of the ILLUSTRATED POULTRY RECORD.*

Sir,—As the official report of the Poultry Club council shows, a committee has been appointed to collect information on the question of International Standards. The names of the members will show that the matter will not be dealt with in any narrow or parochial spirit, and it is hoped that everyone will aid the committee in its work.

I am naturally, as a Pressman, especially anxious to enlist the good services of the Fancy Press. I have sent a letter to all the secretaries of specialist clubs, whose addresses I could trace, but I should esteem it a favour if you can print the appending matter, in case I have missed anyone.

WILLIAM RICE,

Hon. Secretary of the International Standards Enquiry Committee.

Rettendon Common,  
Chelmsford, Essex.

The Poultry Club council has appointed a committee to go into the question of the possibility of International Standards, and to collect information. The council has done me the honour of electing me hon. secretary of this committee, and I have much pleasure in asking your kind assistance. We want to get, in one list, the main points of difference between the English and other "Standards" and it would be of immense service to us if you could briefly indicate, *not for publication*, but for the information of the council, the various details in the "Standard" of the breed your club represents.

(a) Which are the *essential* points?

(b) Which might be modified (and in what direction) if the English standard was revised.

(c) Which may be regarded as *non-essential*; that is to say, which might form the basis of a discussion with the representatives of other countries when, and if, the question of International "standards" moves forward another stage.

It is obvious that no real progress can be made without the hearty co-operation of specialist clubs such as yours, and I will see that you are kept informed as to any suggestion which reaches us affecting your breed.



## POULTRY COOKERY.

### Five Chicken Custards.

NOW that eggs are plentiful and may therefore be used more freely for culinary purposes, we hope our readers will take advantage of the opportunity thus afforded and try the recipes given below, all of which are exceedingly simple yet dainty in the extreme and full of nourishment.

No 1.—Mince very finely six ounces of chicken, either roast or boiled, and three ounces of boiled ham or prime bacon, and added to this three ounces of fine breadcrumbs, two ounces of fresh butter just slightly melted, and a seasoning of salt, pepper, and either grated nutmeg or mace; put these ingredients into a bowl and mix them thoroughly, then moisten well with two or three well beaten fresh eggs and two or three tablespoonfuls of good stock. Have ready some small dariole moulds which have been liberally greased with fresh butter, and three parts fill these with the chicken mixture, then cover the tops with buttered paper and poach in a shallow pan until quite set. Care must be taken to prevent the water boiling over the moulds, but it should be allowed to come as near the tops as possible. When done sufficiently, turn out the custards very carefully on to a hot dish covered with a dish paper, garnish tastefully with sprigs of parsley and slices of fresh lemon, and serve very hot, accompanied by some suitable sauce, or well flavoured gravy.

No. 2.—Break three or four perfectly fresh eggs into a bowl and beat them lightly, then add to them by degrees, three ounces of breadcrumbs, two ounces of butter broken into tiny pieces, a small teacupful of milk, one dessertspoonful each of grated lemon rind, finely chopped parsley and mixed powdered herbs, and a seasoning of salt and pepper, and stir briskly until the various items are thoroughly blended, then add from six to eight ounces of cooked chicken which has been carefully freed from all skin and gristle and finely minced, and mix well together. When ready, turn the preparation into a well-buttered pie dish, and bake in a moderate oven for about half-an-hour. Serve the custard turned out on a hot dish and garnish it round about with egg balls, or hard boiled eggs cut in quarters, slices of fresh lemon and sprigs of parsley, or pleasantly seasoned water cress, and send to table at once, with or without sauce or gravy, according to taste.

No. 3.—Mince very finely four ounces of cooked chicken, and season it pleasantly, then stir it into four or five well-beaten fresh eggs; add a dozen button mushrooms just roughly chopped, half a pint of milk, or white stock, and a little more seasoning if requisite, and mix thoroughly. Have ready a plain round mould, or an ordinary pudding basin which has been well buttered and lightly sprinkled with a mixture of fine brown raspings and chopped parsley, then pour in the chicken custard and steam over plenty of boiling water until quite set. When

done enough turn out carefully on to a hot dish and arrange round about some fried croutons and daintily curled bacon, interspersed with sprigs of fresh parsley, and send to table very hot, accompanied by some well-made egg, mushroom, or piquant sauce. Or, if preferred, stewed mushrooms may be served round the custard, with the curled bacon, and the croutons, neatly arranged on small hot dish, covered with a dish paper and garnished with tiny sprigs of parsley can then be served separately.

No. 4.—Take six ounces of cold cooked chicken and three ounces each of boiled ham and properly prepared mushrooms, and chop together rather finely. Put this mixture into a bowl and add to it a good sprinkling of finely minced parsley, some grated lemon rind, salt and pepper according to taste, a tablespoonful of fresh lemon juice, and two ounces of slightly melted butter, and mix thoroughly, then moisten to a paste with well-beaten perfectly fresh eggs, and a little milk—a tablespoonful of milk being allowed to each egg. When ready, put the preparation into small, well-buttered moulds, and either bake, steam, or poach, according to rules already given. When sufficiently cooked, turn out the custards very carefully and set them in a cool place, then, when required, arrange them in a circle on a flat dish and pile up high in centre a mound of well mixed, pleasantly seasoned green salad, garnish the edge of the dish with a ring of hard boiled eggs and small ripe tomatoes cut in slices and arranged alternately.

No. 5.—Chop very finely the remains of two or three chickens, choosing the white meat only, and season pleasantly according to taste, then moisten to a thick batter with well-beaten fresh eggs and milk in the proportions given above, and set the preparation in a cool place until required. Choose a plain mould of the requisite size, and after buttering the inside very liberally with cold firm butter, decorate it tastefully with hard boiled white of egg and lean cooked ham cut in julienne shreds, small fancy shapes of cucumber and bright red boiled beetroot, picked walnuts cut in tiny pieces, and pickled gherkins cut in strips; press these items well into the butter, then fill in with the chicken batter. Cover the top of the mould with a thick layer of well buttered kitchen paper, and steam steadily over a good supply of boiling water until quite firmly set. When done enough turn out carefully on to a dish and serve either hot or cold. If the former, surround the custard with a border of green peas, or French beans, which have been carefully cooked and pleasantly seasoned, and upon this place small rolls of fried ham or very prime bacon. If the custard is preferred cold, a well mixed, finely shredded green salad forms a most delightful garnishing. It should be arranged round the edge of the dish as already directed, and be ornamented with hard boiled eggs cut in slices or quarters, and tiny heaps of boiled beetroot cut in small dice.



# TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY, GAME, AND EGGS FOR THE FOUR WEEKS ENDING MAY 18, 1912.

ENGLISH POULTRY—LONDON MARKETS.					FOREIGN POULTRY—LONDON MARKETS.					
DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.	COUNTRIES OF ORIGIN.	CHICKENS. Each.	DUCKS. Each.	DUCKLINGS. Each.	GEESE. Per lb.	TURKEYS. Per lb.
	Each.	Each.	Each.	Each.						
Surrey Chickens ...	3/6 to 5/6	4/0 to 5/6	4/0 to 5/6	4/0 to 5/6	Russia .....	1/3 to 2/3	—	—	—	—
Sussex " .....	3/6 " 5/6	4/0 " 5/6	4/0 " 5/6	4/0 " 5/6	Belgium .....	—	—	—	—	—
Yorkshire " .....	3/0 " 4/6	2/6 " 3/6	2/6 " 3/6	2/6 " 3/6	France.....	—	—	—	—	—
Essex " .....	3/0 " 4/6	2/6 " 3/6	2/6 " 3/6	2/6 " 3/6	United States of America ...	—	—	—	—	—
Capons .....	5/6 " 7/0	5/0 " 7/6	5/0 " 6/6	5/0 " 6/6	Austria .....	—	—	—	—	—
Irish Chickens .....	2/3 " 3/9	2/3 " 3/3	2/6 " 3/6	2/9 " 3/6	Canada .....	—	—	—	—	—
Live Hens.....	2/3 " 2/10	2/0 " 3/0	2/0 " 2/9	2/0 " 2/6	Australia.....	—	—	—	—	—
Aylesbury Ducklings	4/6 " 6/6	4/0 " 5/6	3/6 " 5/0	3/9 " 5/0						
Guinea Fowls .....	2/6 " 3/-	2/9 " 3/3	2/6 " 3/6	2/6 " 3/0						
Goslings .....	—	5/0 " 7/6	5/0 " 6/6	5/0 " 6/6						
Turkeys, Cocks...lb.	0/7 " 0/9	0/7 " 0/9	0/7 " 0/9	0/7 " 0/9						
" Hens ...lb.	0/7 " 0/9	0/7 " 0/9	0/7 " 0/9	0/7 " 0/9						

ENGLISH GAME—LONDON MARKETS.				
DESCRIPTION.	Each.	Each.	Each.	Each.
Grouse .....	1/6 to 1/8	1/6 to 1/9	—	—
Partridges .....	—	—	—	—
Pheasants .....	—	—	—	—
Black Game .....	—	—	—	—
Hares .....	1/6 " 2/9	1/0 " 1/9	1/0 " 2/0	1/0 " 1/9
Rabbits, Tame .....	0/7 " 0/9	0/7 " 0/9	0/7 " 0/9	0/7 " 0/9
" Wild .....	—	—	—	—
Pigeons, Tame .....	—	—	—	—
" Wild .....	1/6 " 1/9	1/6 " 1/9	1/4 " 1/9	1/4 " 1/8
Wild Duck .....	1/2 " 1/4	1/3 " 1/4	1/3 " 1/4	1/3 " 1/4
Ptarmigan .....	1/3 " 1/4	1/3 " 1/4	—	—
Hazels .....	—	—	—	—
Plover .....	—	—	—	—

ENGLISH EGGS (Guaranteed New-Laid).				
MARKETS.	Per 120.	Per 120.	Per 120.	Per 120.
LONDON .....	8/6 to 9/6	8/6 to 9/6	8/- to 9/-	8/- to 9/-
Provinces.	Eggs per dozen.	Eggs per dozen.	Eggs per dozen.	Eggs per dozen.
CARLISLE .....	0/10	0/9	0/10	0/10
BRISTOL .....	0/11	0/11	0/10 0/11	0/10 0/10

FOREIGN POULTRY—LONDON MARKETS.									
COUNTRIES OF ORIGIN.	CHICKENS. Each.	DUCKS. Each.	DUCKLINGS. Each.	GEESE. Per lb.	TURKEYS. Per lb.				
Russia .....	1/3 to 2/3	—	—	—	—				
Belgium .....	—	—	—	—	—				
France.....	—	—	—	—	—				
United States of America ...	—	—	—	—	—				
Austria .....	—	—	—	—	—				
Canada .....	—	—	—	—	—				
Australia.....	—	—	—	—	—				

IMPORTS OF POULTRY AND GAME. MONTH ENDING APRIL 30TH, 1912.			
COUNTRY OF ORIGIN.	Price Each During Month.	DECLARED VALUES.	
		Game.	Poultry.
Quail .....	0/8 to 1/6	£4.101	£33.901
Black Game .....	2/0 " 2/6	—	£2.508
Ptarmigan .....	1/2 " 1/4	—	—
Partridges .....	1/2 " 1/3	—	—
Bordeaux Pigeons .....	1/0 " 1/6	—	—
Hares .....	1/6 " 2/6	—	£12.897
Rabbits .....	0/7 " 0/8 1/2	£828	£4.723
Snipe .....	—	—	—
Totals.....	—	£4.929	£54.029

IMPORTS OF EGGS. MONTH ENDING APRIL 30, 1912.			
COUNTRIES OF ORIGIN.	Quantities in Gt. Hund.	Declared Values.	
		Game.	Poultry.
Russia .....	135,668	£48,858	£48,858
Denmark .....	219,013	£96,405	£96,405
Germany .....	47,198	£17,242	£17,242
Netherlands ..	120,024	£54,353	£54,353
France .....	86,863	£35,666	£35,666
Italy .....	100,992	£41,638	£41,638
Aust.-Hungary ..	154,680	£57,021	£57,021
Other countries	127,582	£39,939	£39,939
Totals .....	£991,966	£391,122	£391,122

IRISH EGGS.				
DESCRIPTION.	1st Week. Per 120.	2nd Week. Per 120.	3rd Week. Per 120.	4th Week. Per 120.
Irish Eggs	8/6 to 9/6	8/3 to 9/3	8/0 to 8/6	8/0 to 8/6

FOREIGN EGGS.				
DESCRIPTION.	1st Week. Per 120.	2nd Week. Per 120.	3rd Week. Per 120.	4th Week. Per 120.
French ...	8/6 to 9/6	8/3 to 9/3	8/0 to 8/9	8/0 to 8/6
Danish ...	8/9 " 9/9	8/6 " 9/6	8/3 " 9/0	8/0 " 8/6
Italian ...	8/6 " 9/6	8/3 " 9/3	8/0 " 9/0	8/0 " 8/6
Austrian ...	7/3 " 8/3	7/0 " 8/0	6/9 " 7/9	6/9 " 7/9
Russian ...	7/3 " 8/3	7/3 " 7/9	6/6 " 7/6	6/9 " 7/6



## A GREAT LAYING CONTEST.

£500 GIVEN BY THE GOVERNMENT.

**G**REAT interest attaches to the announcement now made that a sum of £500 has been granted to the Utility Poultry Club out of the Development Fund for the purpose of a Twelve Months' Laying Competition.

The Club originated these instructive tests in 1897, since which date competitions with varying numbers of competing pens have been held annually, and, with the exception of a Twelve Months' Competition in 1907-8 for four months only.

The time selected for the 4 Months' Competitions has always been from Mid-October to Mid-February,



**A White Orpington Cockerel.**

A variety which is proving  
a serious rival to the Buff.

[Copyright.]

so that the competitions have been a good test of the value of a laying strain.

The Club has conducted previous competitions at its own expense, the receipts from the sale of eggs and entry fees while generally meeting the chief cost of management, have left a considerable balance to be paid by the Club. It is for this reason that the Club has had to confine its efforts to the shorter competitions. In the one Twelve Months' Competitions the entry fee was £6 and only 20 pens could be accommodated. The competition was, however, a great success and the Board of

Agriculture and Fisheries made a grant of £35 towards liquidating the deficit.

The educational value of these competitions has been admitted on all sides, and the Club has seen them conducted on a very much larger scale in Australia, America, South Africa and Canada, where they have received government or municipal support.

No doubt the success of the Club in thus obtaining official recognition of what may be called its most important work lay in the excellent scheme that it was able to place before the Development Commissioners. The Harper Adams Agricultural College of Newport, Shropshire, have agreed to conduct a competition of 100 pens of 6 birds each under rules laid down by the Club, and to provide the manager and the land and to undertake the general administrative work subject only to the necessary plant and equipment being provided free of expense. At the moment it is not certain that the money to be granted will be sufficient to provide for 100 pens but an effort will be made to accommodate this number.

The Competition will begin in October next and be open to entrants from all parts of the United Kingdom and it is expected that the entry fee will be either £1 10s. od. or £2 os. od. The Rules and Conditions have not yet been finally settled but they will be issued in due course.

A competition conducted on such a large scale and for so extended a period besides demonstrating very effectually the commercial value of the laying hen cannot fail to give instructive and valuable data for further experiments and improvements in the production of eggs and poultry.

## A Profitable Industry.

Professor Elford of Canada is sanguine as to the prospects of poultry-keeping as a branch of Canadian agriculture. He states that statistics show the annual profits of poultry work out at 239 per cent.; from milch cows 95 per cent.; and from fruit cultivation 88 per cent.

## Homing Geese.

A correspondent of the *Pall Mall Gazette*, writing from Belgrade, Servia, records that Htana Tukitch, a peasant girl of Chachak (Servia), claimed as her property a crate full of geese that was being despatched to Belgrade market by a local poultry dealer. Puzzled by conflicting evidence, the Court at last decided to follow Htana's advice and let the birds themselves decide between her and the dealer, who maintained he had purchased them at a distant village. The geese were set at liberty, and instantly set off, alternately flying and pattering till they reached Htana's backyard and took refuge in the empty shed. Their testimony was taken as conclusive proof of her ownership.



## UTILISING WASTE LAND.

**A**ROUND many factories and works in London and other large manufacturing towns there are spare plots of ground, which could be put to an excellent use—a use that would benefit the worker both in health and pocket. Poultry runs could be erected and stocked with utility fowls, for there are many varieties which thrive capitally in close confinement. The workers would thus have good reason to take an interest in the laying out of an otherwise waste piece of ground. As will be readily agreed the initial expenses would be very small, and would soon be met by the profits from the sale of eggs and chickens for market. If the care of the poultry were left to the workers there can be no doubt that they would in their spare time take much interest in the hobby, and this too would have a beneficial effect on their work.

As an instance of what can be done with apparently waste land, we give a photograph of the ground surrounding the works of the Clement Talbot Motor Car Company. The view we give is only a part of the gardens round the home of the Invincible Talbots, and that they receive some of the care and supervision that has made the Talbots Invincible is obvious. It is the little things that count, and it cannot be doubted that surroundings such as these must have a beneficial influence on the minds of the workers, which naturally is reflected in the quality of their work—the production of the Talbots.

### Supervision.

A great many failures with poultry-keeping on a small scale must be attributed to lack of supervision. A little time ago a gentleman wrote to us for advice regarding his fowls, which during twelve months had averaged less than 40 eggs per bird. There was evidently something radically wrong, and it did not take long to discover it, for as soon as we entered the run we discovered several handfuls of corn—poultry-mixture as the tradesmen call it—lying upon the ground, whilst the hens stood idle in a corner. The explanation was that the owner, being at business during the day, was compelled to leave the feeding to the maids. Sometimes the cook fed the fowls and sometimes the housemaid. Sometimes they both gave them a feed, and at other times the fowls went without. This kind of thing goes on in many otherwise well regulated families, and failure follows as a matter of course. Unless there is supervision to prevent overfeeding and neglect of ordinary precautions it is not worth anyone's while to keep poultry.

## ANSWERS TO CORRESPONDENTS.

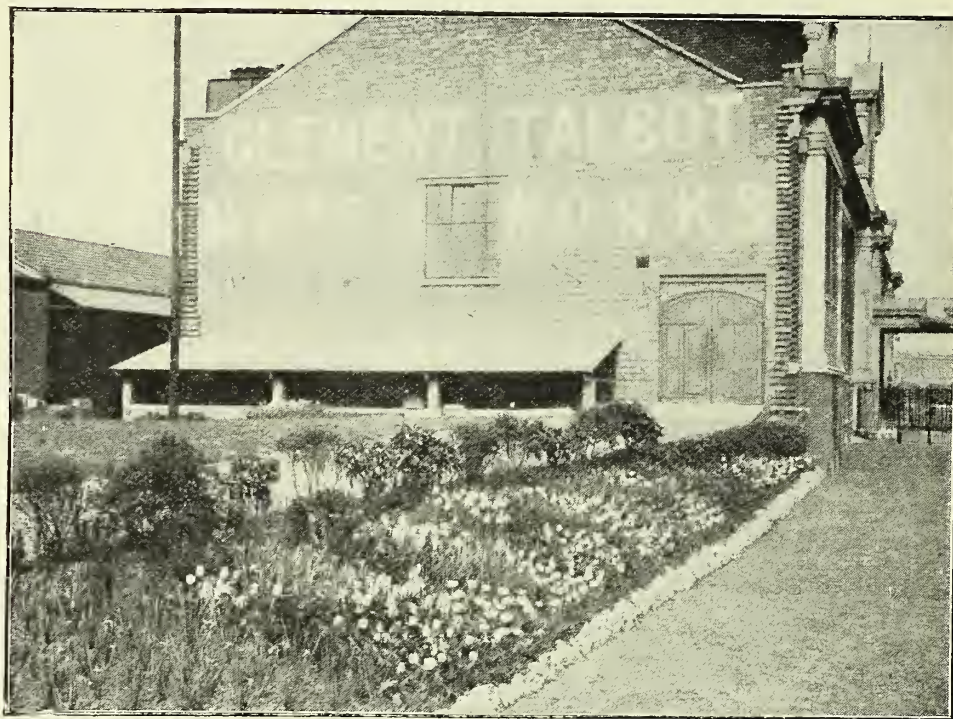
### INFERTILE EGGS.

My duck eggs are very infertile this year. I have fifteen Aylesbury ducks and three drakes, kept in confinement. Do you think there is anything wrong with the drakes, or have I too many females in the pen?—M. B. (Cambridge)

Undoubtedly the reason for the infertility of your eggs is that you have too many ducks with the drakes. To remedy this, the number of drakes should be doubled—namely, six with your fifteen Aylesbury ducks. As a rule three ducks may be allowed with one drake, but during very severe weather, such as we have had this year, better results are obtained by having two drakes mated with five ducks.

### SILVER GREY DORKINGS.

I find Silver Grey Dorkings rather delicate and difficult to rear in this part of the country. My object is the production of table chickens, and I should like to be advised as to the best male to use for crossing with a view to imparting vigour to the progeny. —J. M. H. (Paterson).



**A Corner of the Garden at the Talbot Works.**

You do not state the nature of your soil; but it is found that Silver Grey Dorkings are quite unsuitable for any conditions other than a light gravel soil, and a sheltered position. As you find your Dorkings delicate and difficult to rear, you could doubtless strengthen their progeny, and yet fully maintain the excellent table properties, by crossing with an Indian Game male bird. If, however, your soil is not of a nature to encourage rapid growth, even this introduction will not entirely overcome their delicacy.

### BREEDS FOR CLAY SOIL.

I live on a heavy clay soil, and find that Dorkings do not answer well. Will you please tell me what are the best pure breeds for such conditions?—H. T. (Leeds).

From the fact that you attempt to rear Dorkings we take it that table qualities are your chief aim, and for this purpose on a heavy clay soil Dorkings are quite unsuitable; in fact, under such conditions, the best class of table-chickens should not be kept. A light sandy soil is essential to rapid growth. We would recommend a general purpose breed, such as Plymouth Rocks, Buff Orpingtons, or Wyandottes.



## FEEDING TURKEY CHICKENS.

Will you please tell me what are the best foods for turkeys until they are three months old?—F. G. R. (Whitehaven).

The food for the first five or six days consist of hard-boiled eggs, finely chopped, mixed with biscuit-meal or bread-crumbs moistened with milk. The egg food should be left off gradually, giving in its place a cooked food mixed with rice boiled in milk. When about a fortnight old, a little dari, groats, or buckwheat should be thrown down, and, most important of all, young unions finely chopped. All kinds of tender green food are useful, but meat minced with the soft food for the first three months is absolutely necessary. With this one exception, the same foods as used for the other poultry may be given to the young turkeys. The dry method is unsuitable for turkeys.

## BLACK DUCK EGGS

Some of my ducks are laying eggs the yolks of which are black, and I cannot account for it. They tell me that the water here is quite normal and the ducks are fed principally on crushed oats. I may say that the hen eggs are also very dark.—M. S. D. (Thetford).

In the three eggs submitted to us the yolks were in shades of colour from a light grey to a very dark slate. Both yolk substance and membrane were pigmented, but the eggs were perfectly fresh and free from any trace of odour. The condition probably arises from the blood being charged with certain mineral salts, such as permanganate of iron, derived from some kinds of clay soil. This is, we think, the explanation of the mystery, for although there are grains and vegetable known to influence the yellowness of yolks, we have never known them blackened from that cause. You might try the experiment of penning some of your ducks and poultry off the land, and observe the result on the eggs. We fear there is no other remedy.

## FEEDING IN SHOWS.

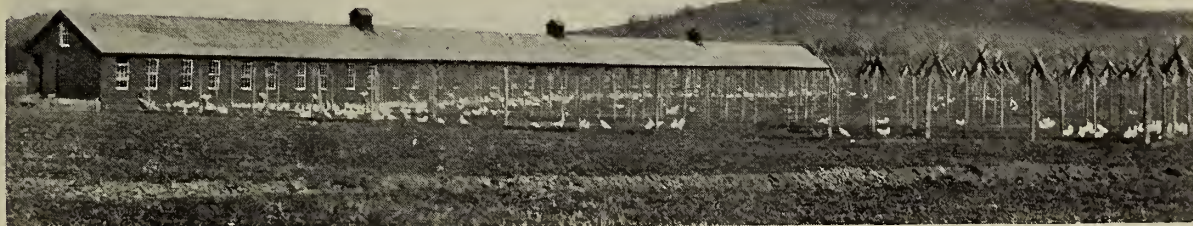
"I have a white Leghorn I want to show later in the season. Would you advise me to keep it in a cote 4ft. square? It is now on a clay run. It has not yet commenced to moult. Would you advise me to force the moult, and, if so, what is the best food for the purpose? What food is generally used for feeding birds intended for show? What is the best thing to do to get all wrinkles and marks out of the earlobes, and to make the comb a bright red—the comb has gone a little bit blue?"—H. L. (Berkhamstead)

A 4ft. square "cote" providing it is not less than 4ft. high, will answer well enough in which to moult a Leghorn cock; but it is not advisable to keep the bird continually confined to such a small place until it is required for show. If it used as a moulting house (and many similar contrivances are in vogue in fanciers yards) the front should be of light sacking stretched on a wooden frame to answer as a door; and there should be a 6in. space at the top of each side to keep the interior well aired. But as soon as the bird is through his moult he should be permitted to run in the open in a shaded place. A clay run will answer the purpose, providing it stands on high ground and well drained. Confinement to the "cote" combined with rather short rations, will cause the fowl to commence moulting; and an occasional feed of hemp seed at this period will prove beneficial, although it must be

discontinued as soon as the moult commences. Nothing can be done to hasten the moult. Keep the bird warm and well fed, but with cooling food, since a stimulating diet causes fever, and prevents the proper formation of the features. There is really no special food for giving to fowls which are intended for exhibition. A good poultry meal as the soft food is good at all times. Half a handful allowed to soak thoroughly in boiling water for about half an hour, and then mixed with a small quantity of boiled and minced cabbage, and dried off with middlings, will be found ample for the bird's breakfast, and about a handful of wheat or short and heavy oats will do for "tea." In confinement fresh green food should be freely allowed, and there is no kind to excel lettuce which has gone to seed and is stalky. The best thing to do to get wrinkles out of white earlobes is to bathe them frequently with tepid water or milk, to work them well between the finger and thumb, and then dust them lightly with zinc powder or starch powder; but no trace of the powder must be allowed to remain on the lobes when the bird is exhibited. If the Leghorn's comb has "gone a little bit blue" the bird is probably suffering from liver complaint and a dose of Epsom salts combined with a good supply of fresh dandelion leaves (either given whole or minced and mixed with soft food) will probably be all that is needed to set matters right.

## SHORT REPLIES.

- R. A. J. (Belfast): No.  
 M. R. S. (Dumfries): No.  
 W. E. S. (Cricklewood): Yes.  
 H. R. T. (Tottenham): 1. 3. 4.  
 B. C. S. (Wyè): The late Lewis Wright.  
 F. J. R. (Harrow): See article in this issue.  
 H. B. (Guelph, Canada): Not till November.  
 M. L. (Sandown Isle of Wight): Buff Orpington.  
 E. M. (Hampstead): From 1905 to 1909 inclusive.  
 H. W. R. (Ilford): The Silver Grey or the Dark varieties.  
 O. M. (Watford): Single comb; fairly large and evenly serrated.  
 H. T. W. (Preston): See *Illustrated Poultry Record*, May, 1909.  
 E. R. (Queenstown): (1) 120 to 130. (2) Yes. (3) 75 p.c. (4) White.  
 G. B. D. (Newport, Mon.): Buff Orpington or White Wyandotte.  
 H. P. (Crawley): To which variety do you refer. There are about eighteen.  
 J. S. (Petersfield): If you care to send it to us we shall be pleased to give our opinion.  
 H. J. R. T. (Newark): The late Mr. William Cook, Orpington House, St. Mary Cray, Kent.  
 R. T. L. (Aberdeen): We will bear your remarks in mind. Thank you for your suggestions.  
 W. B. (Aberdeen): "*The Amateur Poultry-Keeper*." Price 1s. 2d., post free, from this office.  
 L. P. S. R. (Rio de Janeiro, Brazil): We must refer you to our advertising columns. Several firms are there advertising what you require.



**A Large Laying House on an American Farm.**

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These long ranges of scratching sheds are very popular in the United States. Each house in the above range measures 16 feet square and accommodates about twenty laying hens.



## ITEMS OF THE MONTH.

### A Model Poultry Farm.

THE equipment of a model poultry farm—probably one of the finest of its kind in the country—has just been completed by Mr. William Tamlin, of St. Margaret's Works, Twickenham, for the Molassine Co., at Twyford, Berks, and we believe is the biggest contract ever undertaken by any poultry appliance manufacturer yet in this country. The farm is situated between Twyford and Reading, on the Great Western Railway, and travellers by that line cannot fail to be attracted by its unique situation and attractive appearance; doubtless many of our readers will pay it a visit of inspection during the coming summer.

The whole of the plant, which differs materially from that existing on any other farm at present in operation in Great Britain, has been designed by Mr. Tamlin, and will for many years to come stand as a monument of the good work which this old-established firm is capable of producing.

Briefly, the plant comprises fifty-six stock pens; each run measures 27 yards by 15 yards wide, formed of movable fencing hurdles 9ft. long by 8ft. high. These are bordered at the bottom to 2ft. 6in., and topped with wire netting. The houses, measuring 30ft. by 5ft. 6in., are of special construction, being extremely commodious and providing the maximum amount of light and air. They are fitted at each end of the gable with a special slatted ventilation device, which ensures a through current of fresh air and avoidance of draught. The houses are divided in the centre, thus providing two pens. There are also twenty chicken pens made in pairs; the planning of these has necessitated the use of 400 hurdles, each 9ft. long. The houses measure 12ft. by 5ft. 6in. Thirty other smaller chicken houses complete the equipment, twenty of which are on sledges, whilst the others are without. The total number of the houses is 150, and all are provided with large runs, in the formation of which 1,750 hurdles and gates have been used.

One of the outstanding features of the establishment is a large incubator house, 33ft. long by 16ft. wide. This has a pleasing elevation, but more important is the fact that its construction includes the latest principles of ventilation. The sides are double walled, and packed with inodorous felt and non-conducting material, the ceiling being constructed on the same principle, and the gable ends are fitted with louvre boards, which insulates the heat of the sun from the roof. By this means the inside temperature is not affected by outside changes in climate conditions. The windows are provided with shutters to exclude the cold through the glass in winter, and with linen-covered frames inside so that on opening the windows in hot weather, no direct draught may enter, but at the same time the light is not affected. This building, and all the other houses on the farm are made of lin.

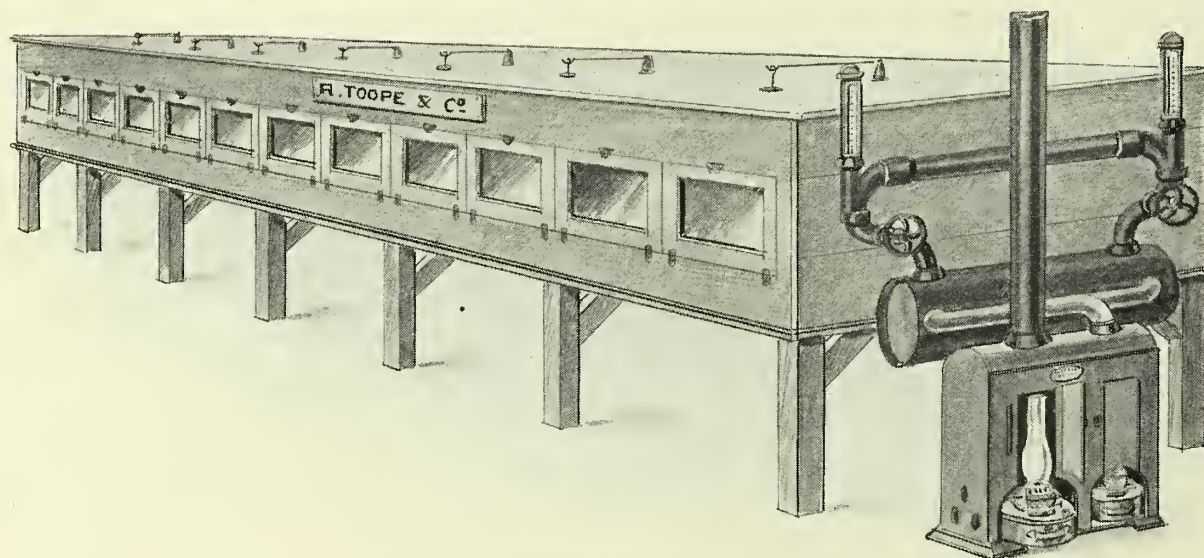
red timber and painted white. The roofs are covered with a special roofing material and painted a bright red. All the hurdles are treated with a wood preservative of a rich brown colour, thus giving the whole a most picturesque appearance.

### A Mammoth Asbestos Hen Incubator.

Owing to the increasing demand for large incubators, Messrs. R. Toope & Co., of Stepney Square, Stepney, London, have introduced a new type of their well-known incubator. This is called the Mammoth Asbestos Hen. It is made in sizes with a capacity of from 800 eggs, additional capacity being added as requirements necessitate in the form of sections, each holding 400 eggs. Outwardly it has the same style and finish as their small machines. The temperature of the egg chamber is under the control of two systems of regulation, one regulator controlling the temperature of the water, and one controlling the supply of heated air. Incubators with a capacity of 2,000 eggs are the largest size made, and are heated by petrol and oil, but gas, being of a more constant heating nature, will heat machines with a capacity up to 5,000 eggs. When adding sections, creating a capacity above a certain point determined by the makers, larger boilers should replace the smaller ones. This is the only alteration necessary. An important feature to note is that if the customer wishes to change the oil-heated boiler to a coke, gas, or petrol-heated one, he can easily and economically do so by uncoupling the joints behind the boiler and connect up the new one. Full particulars of this interesting machine will be sent gladly by the makers.

### Mr. Tamlin's Exports.

The following is a list of Mr. W. Tamlin's exports for April, 1912: Fourteen 100 incubators, five 100 and five 60 foster-mothers to Fernand Colman, agent for Belgium; ten 100, and six 60 incubators, six 200 incubators, six 100 foster-mothers, to Andre Massen, agent for France; six 100, also six 60, and six 30 egg incubators, one 200 egg incubator, six 100 Foster-mothers, also six 60 foster-mothers, to H. Mascaranhas, agent for Portugal; three 60 and three 100 egg incubators, to C. W. Champion, agent for the Orange Free State, S. Africa; nine 20, also nine 60, and six 100 egg incubators; three 60, and three 100 foster-mothers, to John F. Marshall, agent for the Transvaal, S. Africa; one 100 incubator, to Natal, S. Africa, per order of Maling & Sons; six 60 and six 100 egg incubators, three 60 and three 100 foster-mothers, to Woodhead, Plant & Co., agents for Cape Town, Africa; one 60 incubator to Ceylon, India, order of Ullathorne & Co., one 60 incubator and one 60 foster-mother, to the order of T. & W. J. Walker, London; one 100 incubator, to H. Hebbaiwi, Cairo, Egypt; one 60 incubator, and one 60 foster mother, to Perth, W. Australia, order of H. S. King & Co.



The Mammoth Asbestos Hen Incubator. (See note above).